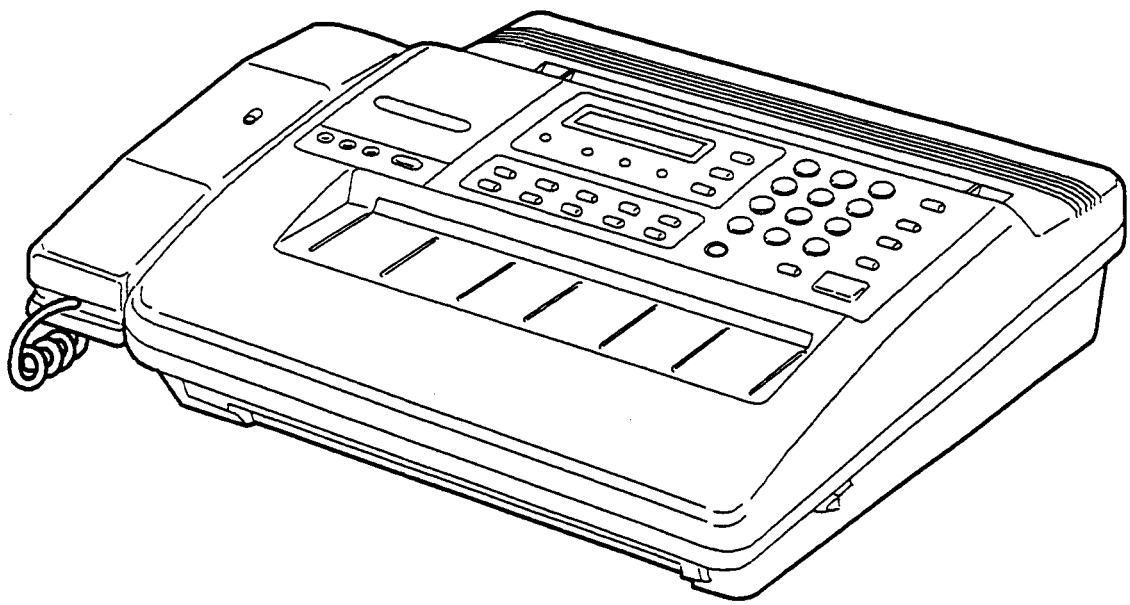
FX6000AT

FAX/ANRUFBEANTWORTER

SERVICE MANUAL



AMSTRAD

SPECIFICATIONS

1. FACSIMILE

1-1. Communication capabilities

1) Compatibility:	CCIT Group 3	4) Transmission speed:	28sec./page*
2) Communication system:	Half-dupulex	5) Line connection:	PSTN
3) Modem speed:	9600/7200/4800/2400bps with automatic fall down	6) Coding:	MH

*With a FUNAI standard document without including time for Protocol signal i.e., CCITT phase C time only.

1-2. Document Transmission

1) Scanning Method:	Stationary CCD	7) T.S.I. (Heading):	ID No. 20digits ID Name 20 digits Calendar (Example: 25FEB91) Time (Example: 13:49) Page (Example: P.001)
2) Resolution (H):	8pels/mm		
(V):	Normal 3.85 lines/mm Fine 7.7 lines/mm		
3) Gray-scale:	16 Levels		
4) Document width:	210mm		
5) Effective scanning width:	205mm	8) Brief Confirmation Report:	Yes (TX only)
6) Auto. Document Feeder:	Yes (5 pages max.)		

1-3. Document Reception

1) Printing Method:	Thermal	3) Auto. Paper Cutter:	Yes
2) Effective Print Width:	208mm	4) Recording Paper Size:	210mmX30m (Paper Roll)

1-4. Operating Function

1) Local Copy:	Yes	3) Polling:	Yes
2) Speech Request:	Yes (Transmission/ Reception modes)	4) Journal Print:	Yes (40 reports)
		5) Delayed Transmission:	Yes (24 Hour Timer)

2. DIALING FUNCTIONS

2-1. Dialing system:	DTMF (DT)/DP(10pps)	2-5. On-HOOK DIAL:	Yes (Activating monitor speaker)
2-2. One Touch:	Facsimile 10 locations (20digits) Telephone 10 locations (20 degits)	2-6. Automatic Redial:	Yes (3min. interval, 3 times)
		2-7. Delayed Dialing:	Yes
2-3. Abbreviated Dialing:	30locations (20 digits)	2-8. Hold:	Yes
2-4. Redialing:	Yes (32 digits)		

3. ANSWERING DEVICE

3-1. OGM RECORDING:	IC (16KBPS/256K)	3-5. TAPE LENGTH:	MC-30 or MC-60
3-2. OGM RECORDING TIME:	16 sec. for 2 messages	3-6. ICM RECORDING TIME:	30sec. or 1min.
3-3. OGM AUTO DUBBING:	Yes (Power failure)	3-7. ICM MONITOR:	Yes
3-4. ICM RECORDING:	Tape	3-8. ICM NEXT MESSAGE SKIP:	Yes

*** Transmission speed:** With a FUNAI standard document without time for Protocol signal i.e., CCITT phase C time only.

4. CONTROLS AND INDICATIONS

4-1. Switches

1) Monitor switch:	High/low/Off
2) Dialing system switch:	DTMF/PULSE (Soft ware switch)

4-2. Indicators

1) LCD Display:	16 digits, 1 lines.
2) LED:	LED X 6 ALARM VOICE START STANDARD-MANUAL FINE -FAX HALFTONE-ANS/FAX

4-3. Operating Buttons

1) START/ENTER button:	Start on FAX/COPY mode Enter.
2) STOP/RESET button:	Stop on FAX/COPY mode and Reset.
3) MODE button:	Mode selection. TX/COPY (Standard-Fine/Halftone) RX (Manual-FAX- ANS/FAX)
4) SPEECH/ ON-HOOK button:	Speech request Reservation of speech ON-HOOK For ON-HOOK Dialing
5) Dialing Ten Key:	For dialing, 0-9 Asterisk button Pound button
6) HOLD button:	Yes
7) REDIAL/PAUSE button:	REDIAL-Last phoned number PAUSE-Dialing pause
8) ABBR. button:	For abbreviated dialing.
9) ONE TOUCH button:	10 buttons
10) OVERSEAS button:	Yes
11) POLLING button:	Yes
12) FUNCTION button:	Yes
13) FF button:	Fast forward
14) REW button:	Rewind
15) PLAY button:	Playback
16) OGM:	OGM play/recording

5. POWER SUPPLY

5-1. Power supply:	AC 220V-240V, 50Hz
5-2. Power consumption:	Standard; 12W Operation; max100W

6. ENVIRONMENT CONDITIONS

1) Operating enviroment:	Temperature; +5 – +35°C Relative humidity; 35%~85%

7. SIZE

W411mmXD307mmXH10mm

8. Weight

4.8Kg

DISASSEMBLY INSTRUCTIONS

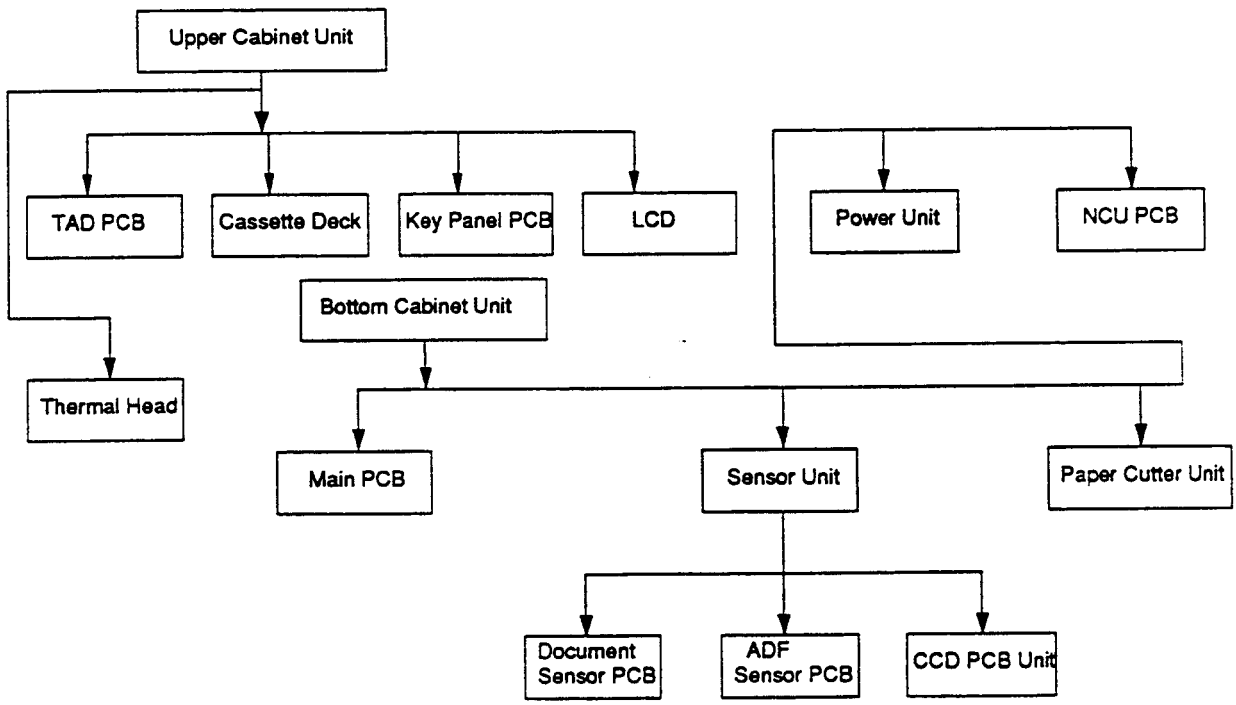
PRECAUTIONARY INSTRUCTIONS--PLEASE READ THE FOLLOWING INSTRUCTIONS CAREFULLY BEFORE PROCEEDING.

1. Turn the power switch off and disconnect the power and telephone line cord.
2. Some electronic components are extremely susceptible to static damage. Use the unti-static discharge tools when working with the printed circuit boards.
3. Do not use excessive force to remove circuit boards or connectors.

DISASSEMBLY PROCEDURE DIAGRAM

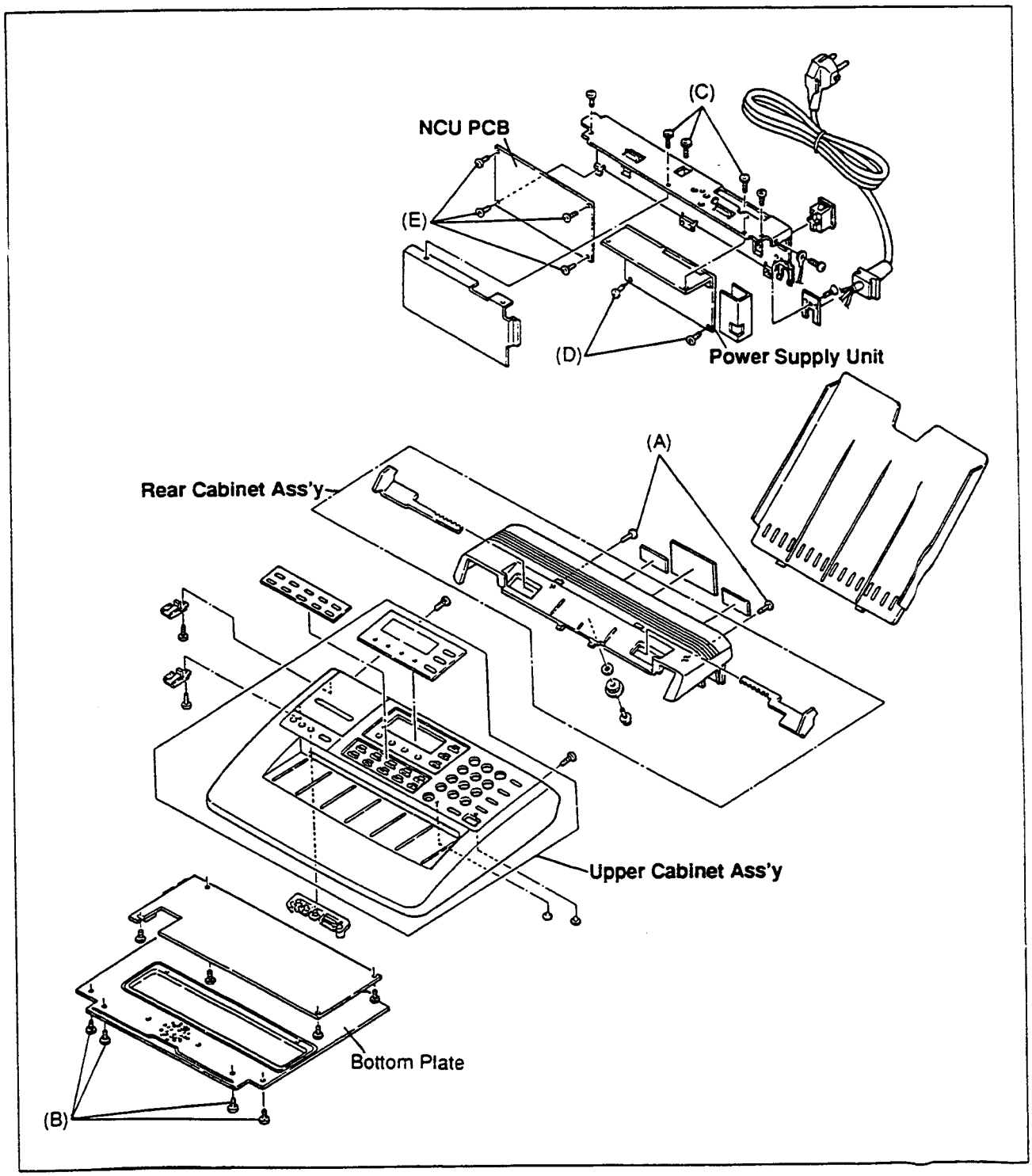
Note :

This flow chart indicates the disassembly steps of the unit parts in order to gain access to item(s) to be serviced. When reassembling, perform the step(s) in the reverse order.



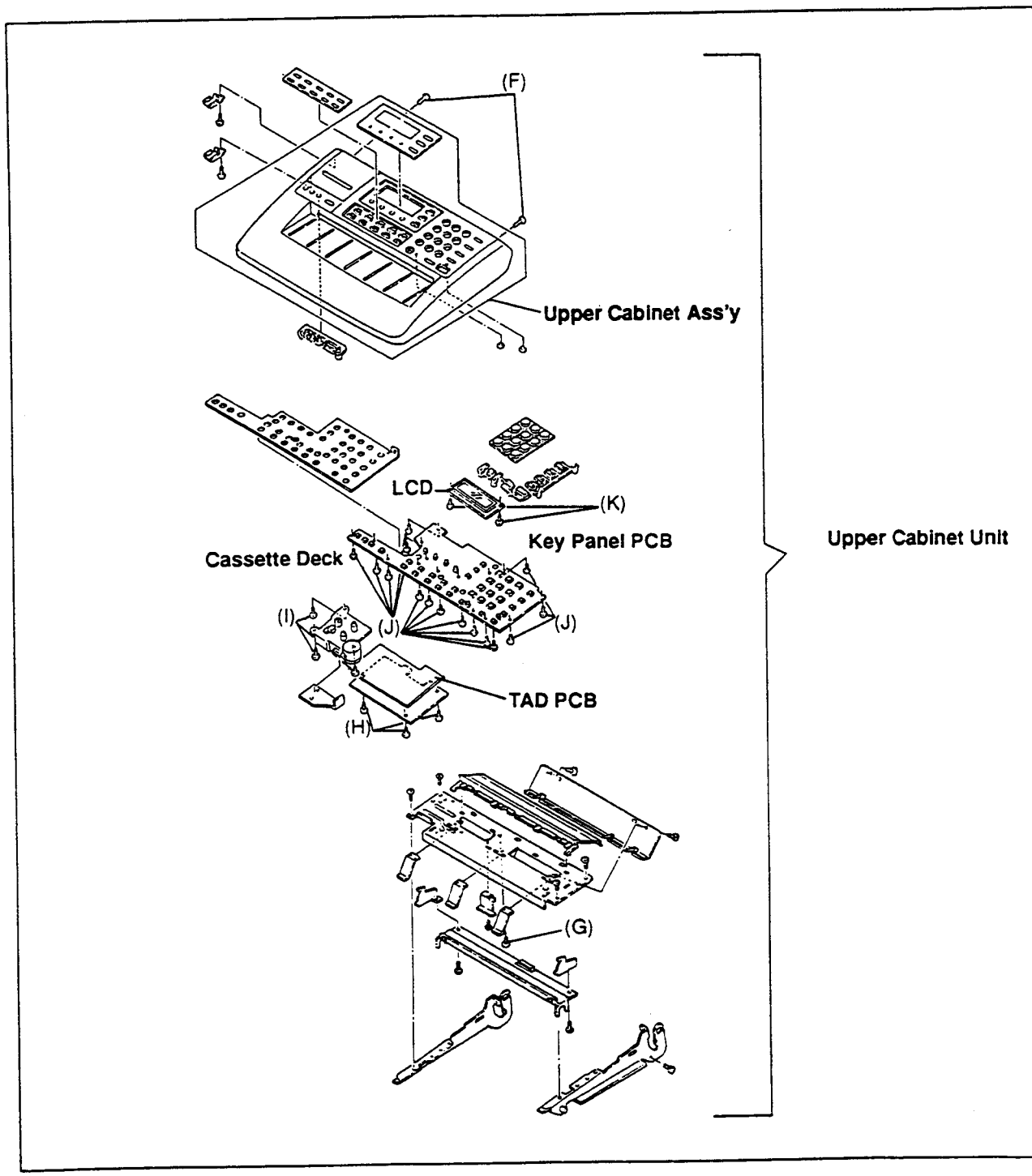
1. POWER SUPPLY UNIT & NCU PCB REMOVAL

1. Remove 2 screws (A) and **Rear Cabinet Ass'y** can be removed.
2. Remove 4 screws (B) on the Bottom Plate and remove 3 connectors from Main PCB to NCU PCB.
3. Remove 3 screws (C) and Heat Sink can be removed.
4. Remove the Joint and Power Supply Unit and NCU PCB can be separated.
5. Remove 2 screws (D) and **Power Supply Unit** can be removed.
6. Remove 4 screws (E) and **NCU PCB** can be removed.



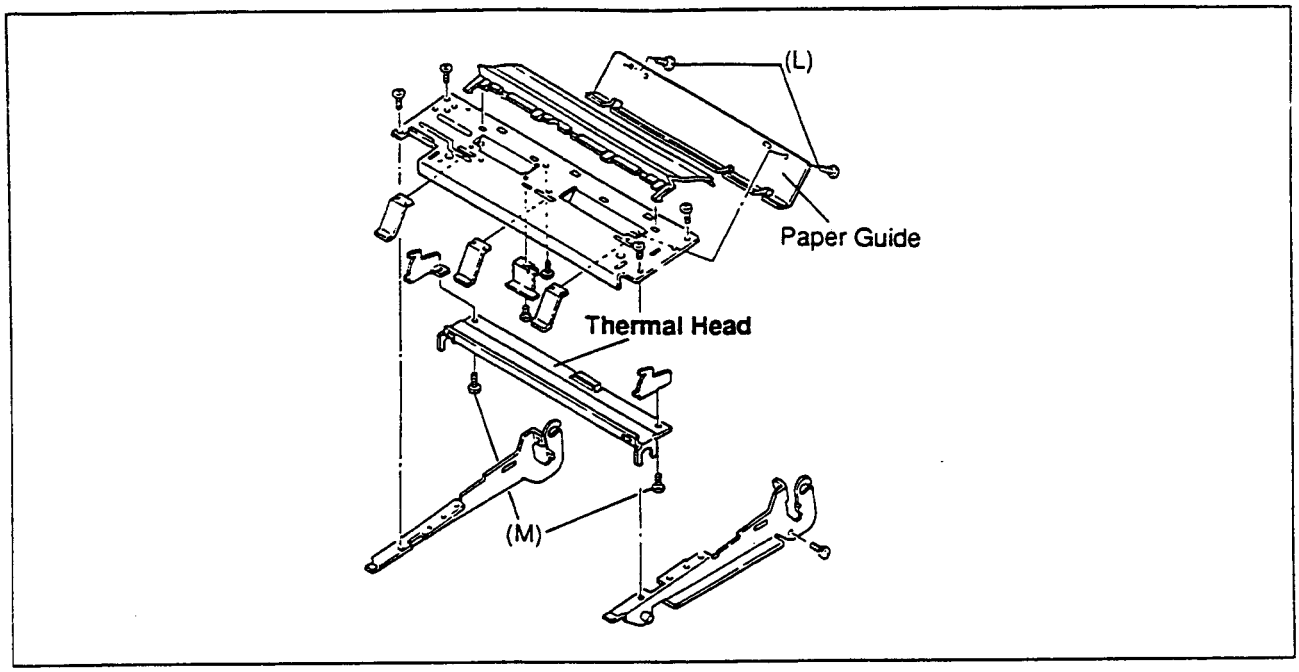
2. UPPER CABINET UNIT REMOVAL

1. Remove 2 screws (F).
2. Remove 4 connectors from Main PCB.
3. Lift the **Upper Cabinet Unit** at 90° upward and it can be removed.
4. Remove the screw (G).
5. Remove 3 screws (H).
6. Remove the connector from Cassette Deck to TAD PCB and **TAD PCB** can be removed.
7. Remove 3 screws (I) and **Cassette Deck** can be removed.
8. Remove 15 screws (J) and **Key Panel PCB** can be removed.
9. Remove 2 screws (K) and **LCD** can be removed.



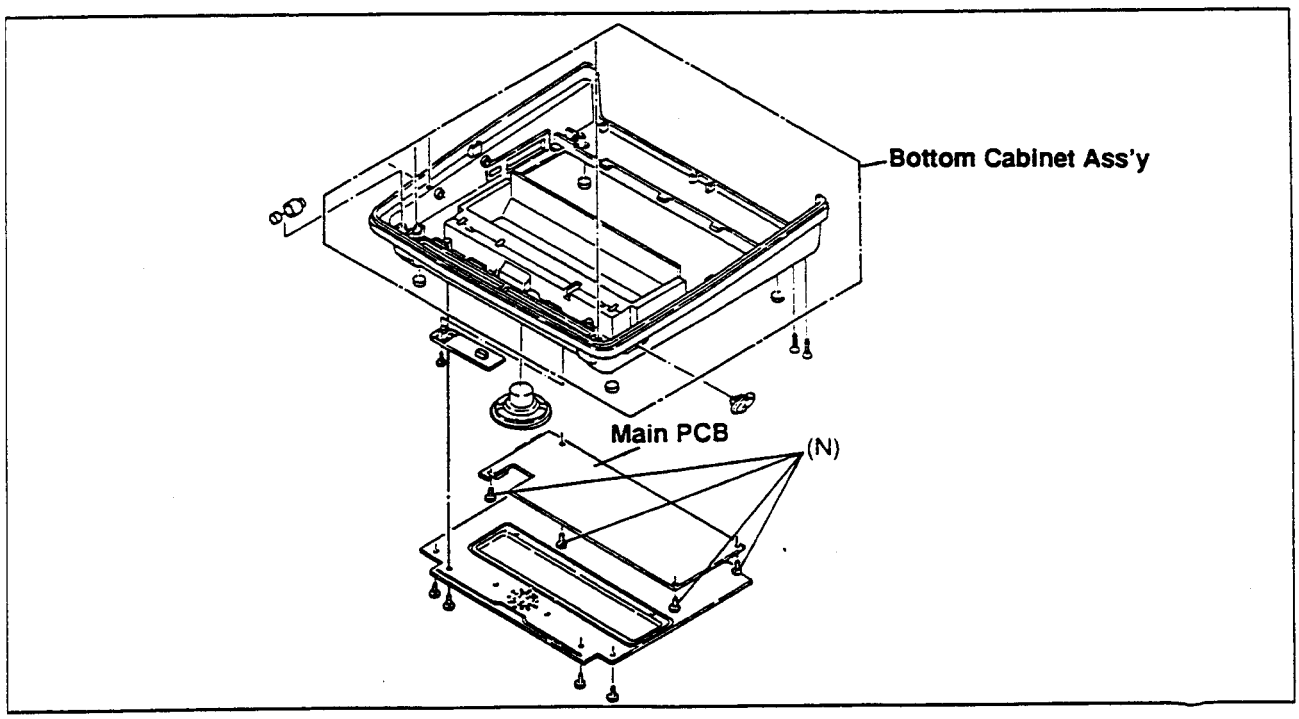
3. THERMAL HEAD REMOVAL

1. Remove 2 screws (L) and remove the Paper Guide.
2. Remove 2 screws (M) and remove the connector on Thermal Head.
3. **Thermal Head** can be removed.



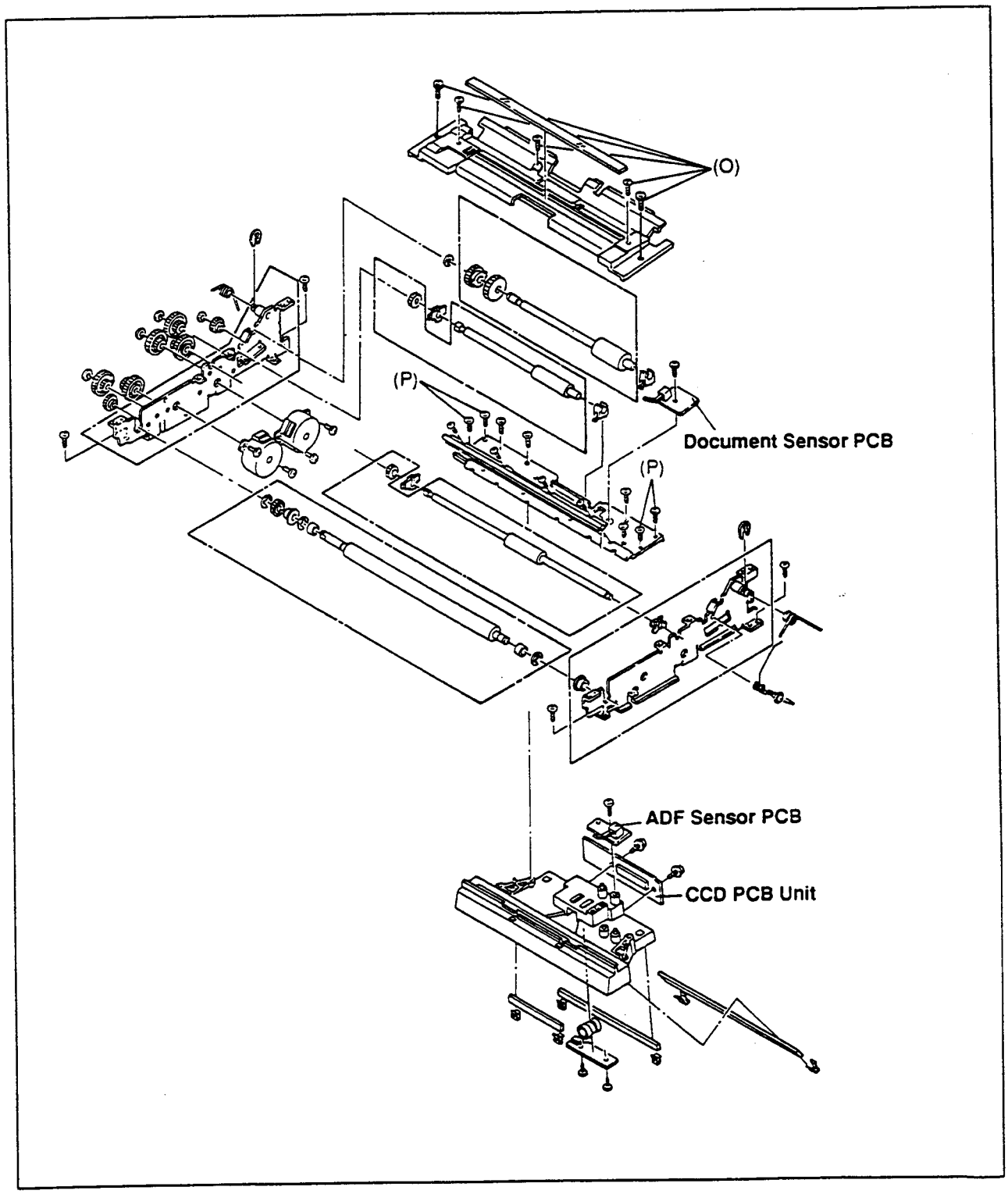
4. MAIN PCB REMOVAL

1. Remove the rest (7 connectors) on the Main PCB.
2. Remove 4 screws (N) and **Main PCB** can be removed.



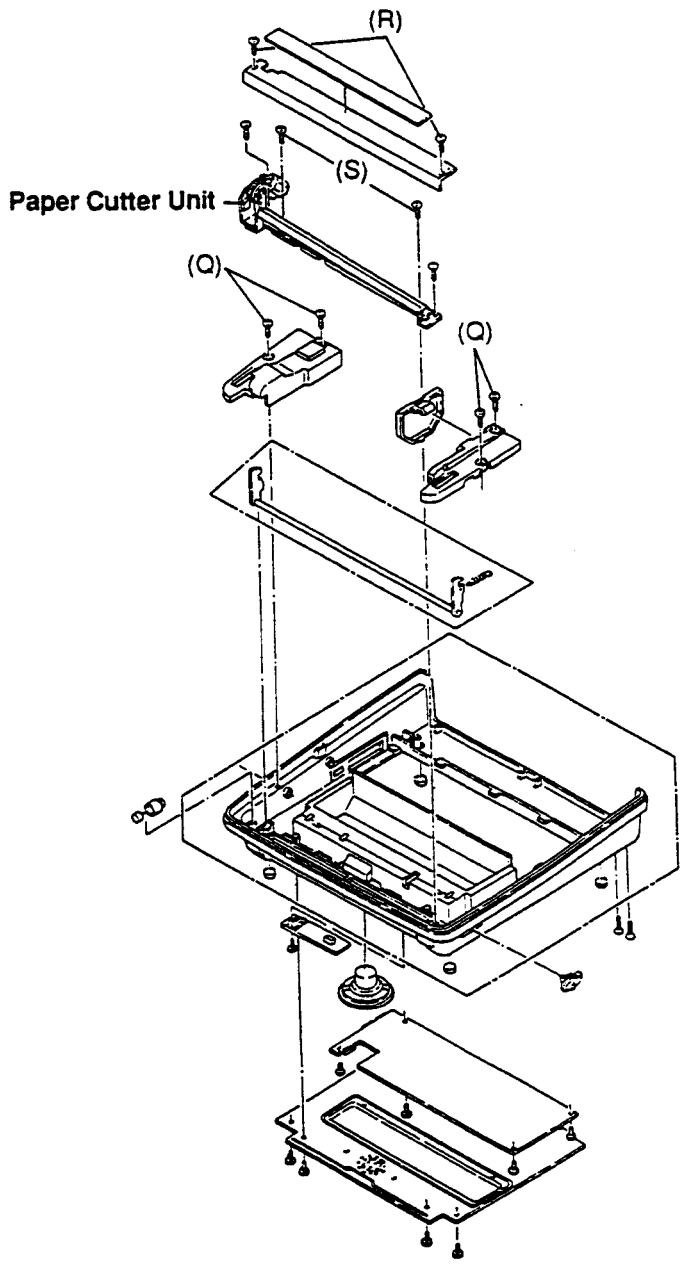
5. SENSOR UNIT REMOVAL

1. Remove 5 screws (O).
2. Remove 3 rollers.
3. Remove 4 screws (P) and **Document Sensor PCB** and **ADF Sensor PCB** and **CCD PCB Unit** can be removed.



6. PAPER CUTTER UNIT REMOVAL

1. Remove 4 screws (Q).
2. Remove 2 screws (R).
3. Remove 2 screws (S) and **Paper Cutter Unit** can be removed.

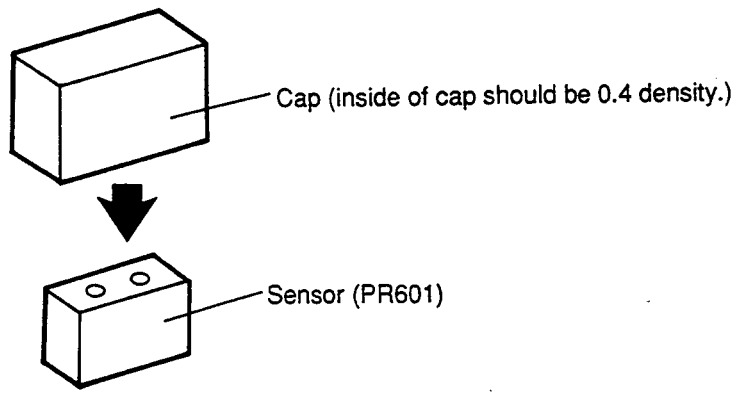


ALIGNMENT PROCEDURE

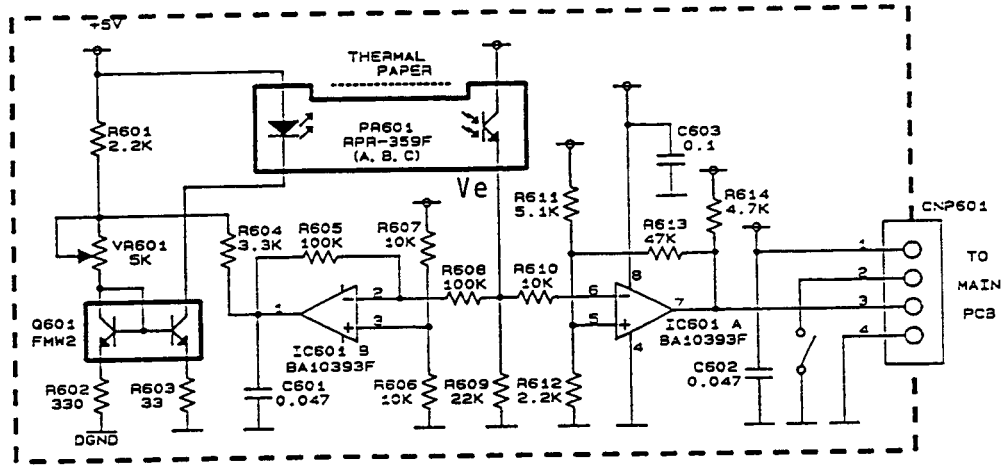
PAPER-END SENSOR ADJUSTMENT

1) Place a cap on sensor-unit.

2) Adjust Ve to set about 2V by VR601.



PAPER END SENSOR PCB



Q5020EA

OPTICAL READ OUT SECTION ADJUSTMENT

NOTICE!

IF THE EQUIPMENT COME UNDER ONE SEVERAL OF THE FOLLOWING CONDITION, OPTICAL READ OUT SECTION MUST BE CHECKED AND ADJUSTED.

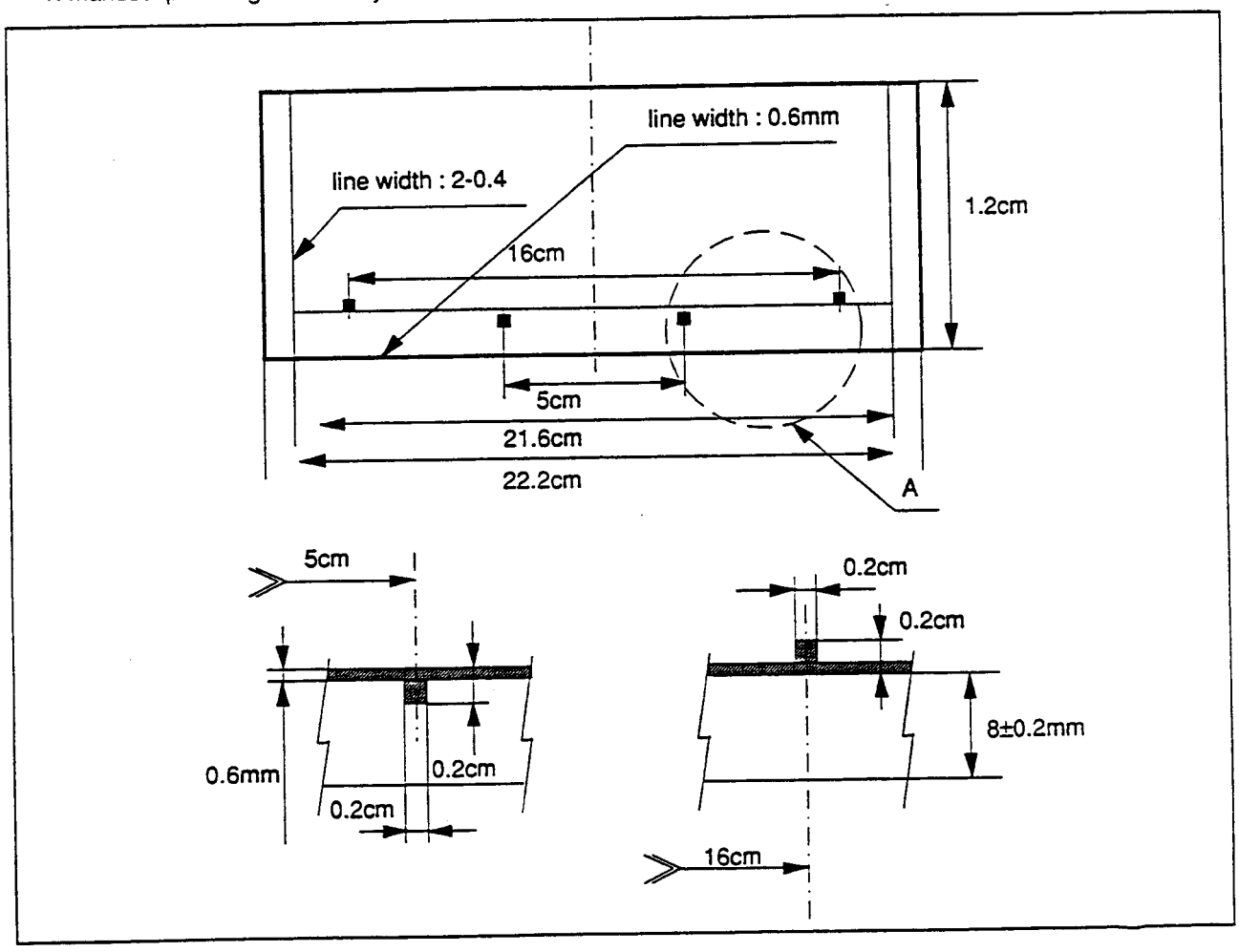
(1) Un-fasten holding screws CCD PCB when a part in the CCD unit is defective.
(2) Copy is not clear after re-installing the CCD unit located on the chassis.
(3) Copy is not clear re-installing mirror.

Light Path Adjustment method

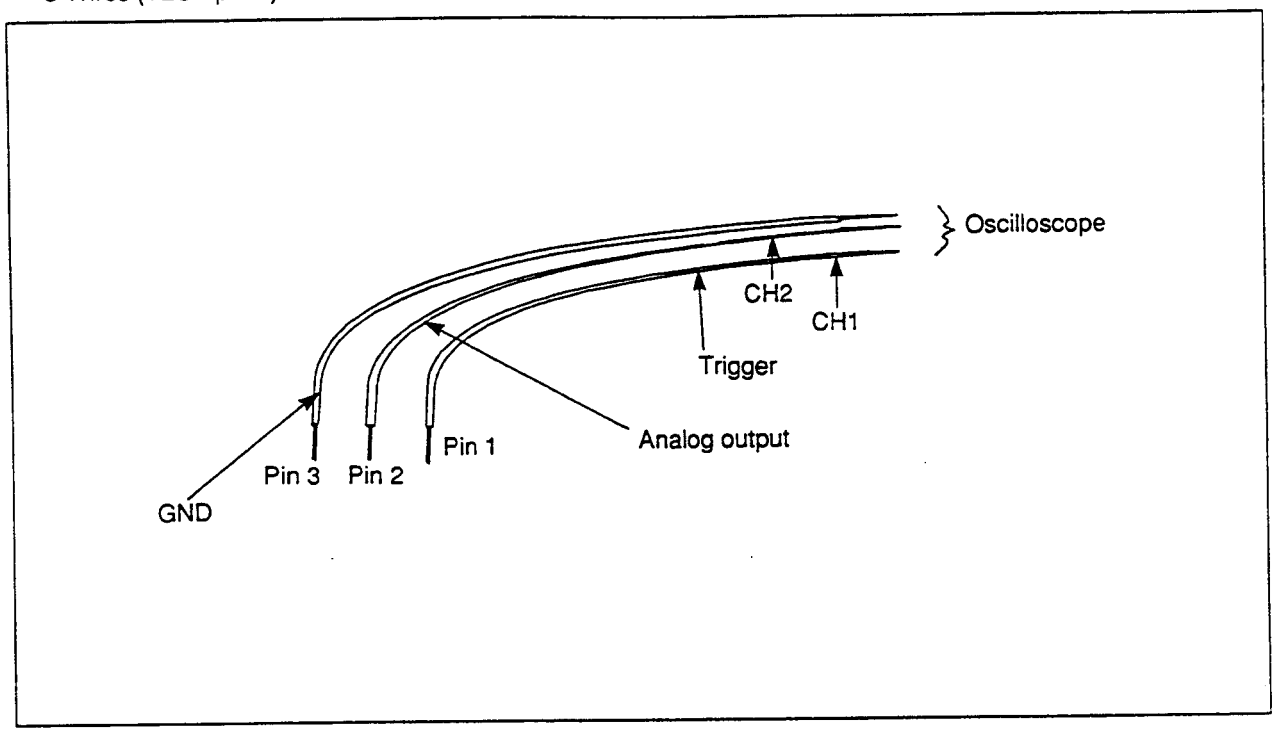
Disassembly

1. Remove Rear Cabinet. (two screws)
2. Remove Power Supply unit. (two screws)
   Things to be prepared for adjustment of light path.

1. Manuscript for Light Path Adjustment.



2. Connect (shown below) on Main PCB.
3 Wires (TEST point)



Adjustment method

Setting

1. Connect 3 wires to the following of Main PCB.
   TEST point (near Dip-Switch; SW001)
2. Slightly loosen CCD PCB mounting screws for Light Path Adjustment to be moved little by little.

Note:

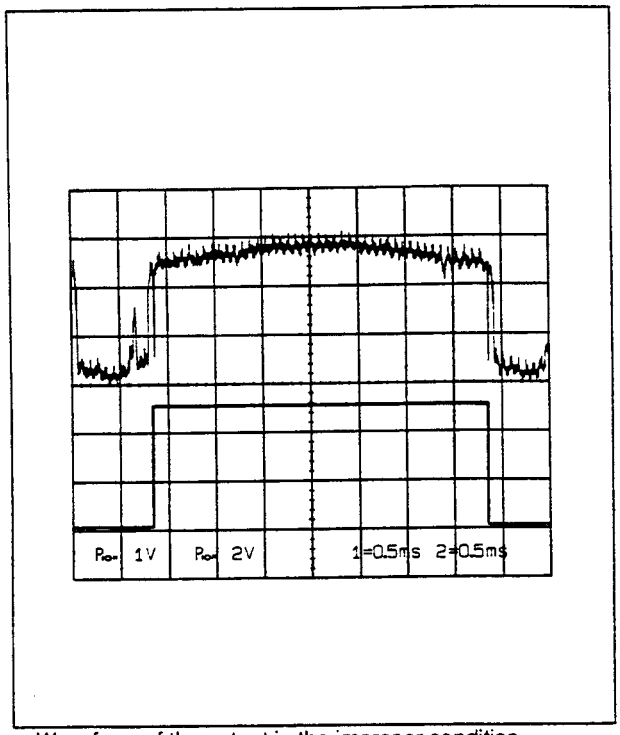
After the adjustment completed, tighten the PCB mounting screws at torque of 6kg-cm2, and glue it up.

3. Set to set mode by the following procedure. (Light the LED ARRAY)
   a. Press Function button, # and $ key in sequence, Display reads "TEST 1", lights on.
   b. Pressing the MODE button four times, then LED ARRAY lights on.
4. Set the Manuscript for Light Path Adjustment on the Glass.

Adjustment

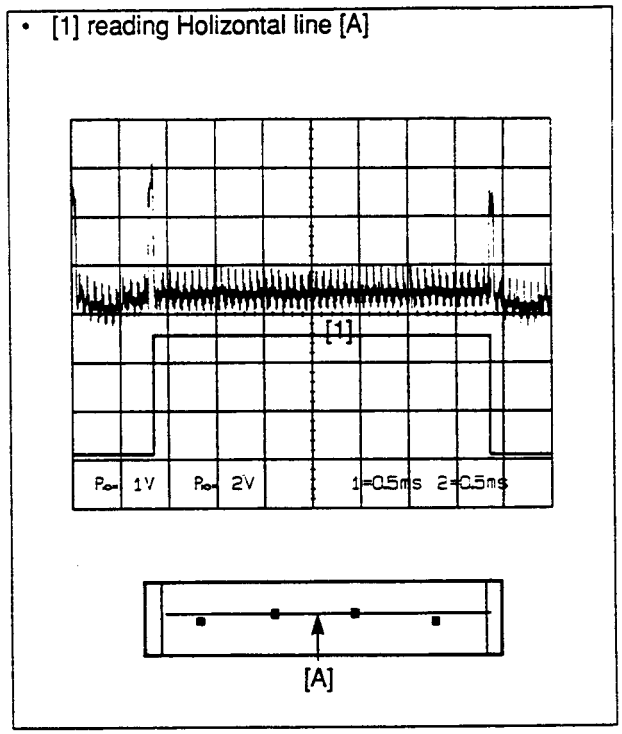
1. Mount 3 wires to Oscilloscope.

a. Waveform of initial condition (example).



b. Waveform of the output in the proper condition.

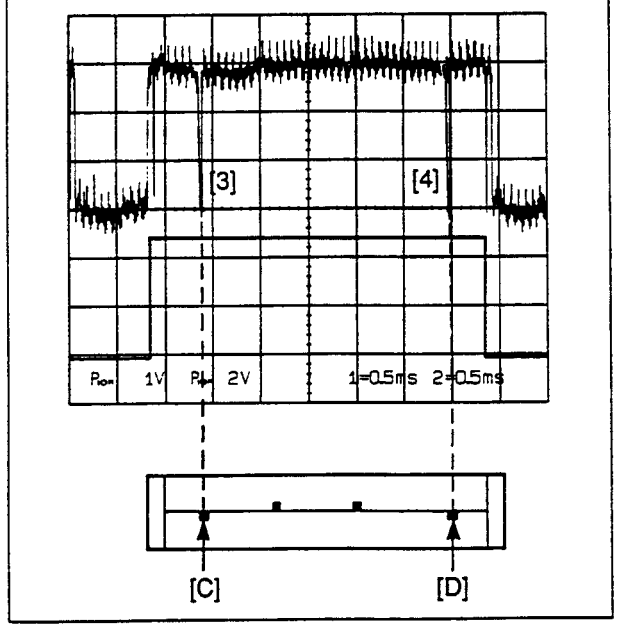
• [1] reading Holizontal line [A]



c. Waveform of the output in the improper condition.

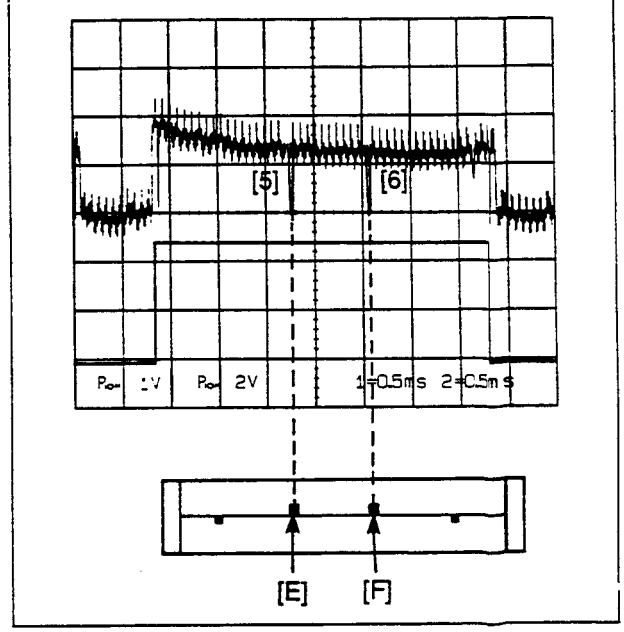
• [3] reading rectangle [C],[4] reading rectangle[D]

<A>



• [5] reading rectangle[E],[6] reading rectangle[F]

<B>



[1] When waveform is shown as A, outside rectangles are read. Adjust to get the proper condition's waveform (shown above figure) by moving the CCD PCB upward to read the horizontal line.

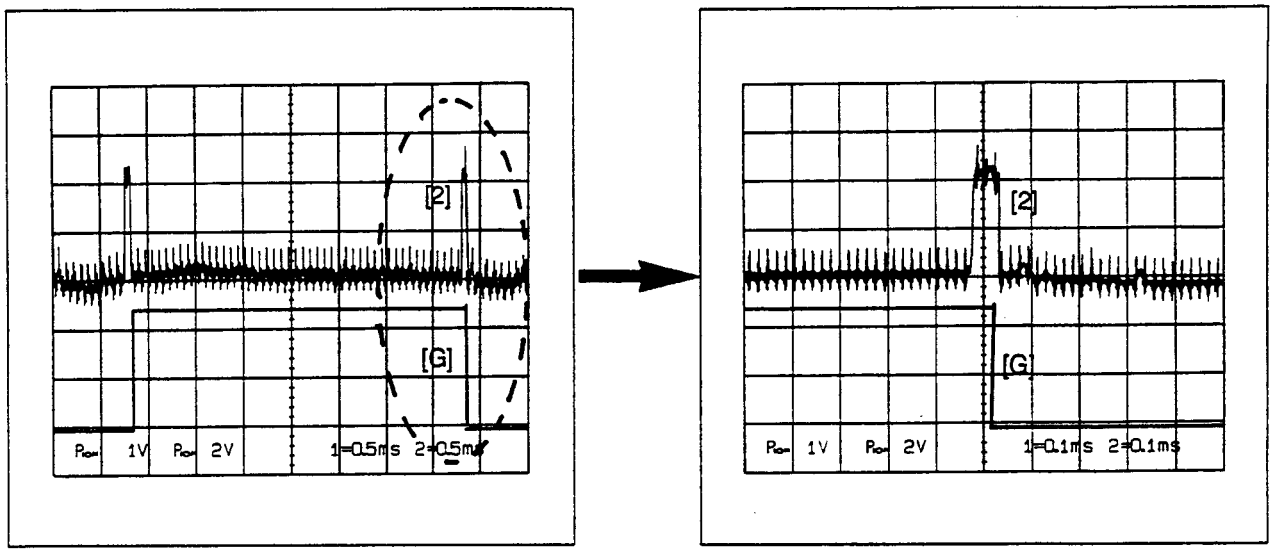
[2] When waveform is shown as <B>, inside rectangles are read. Adjust to the get the proper condition's waveform (Shown above figure) by moving CCD PCB downward to read the horizontal line.

Q5020ADJ

D. Adjustment of deviation on the right and left sides of document.

a. Set the one graduation of Oscilloscope to 20μsec.

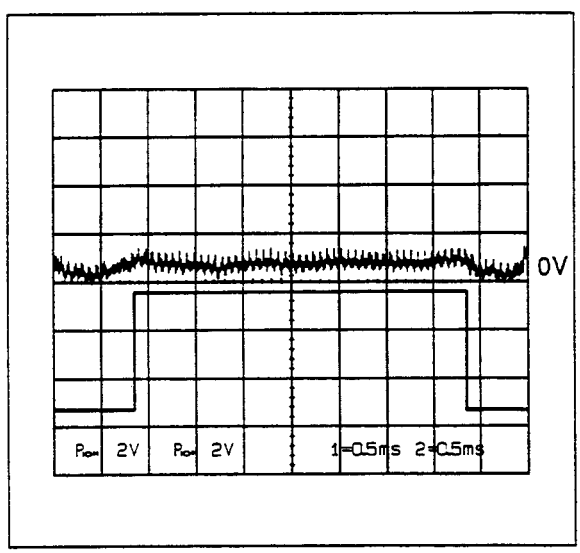
b. Check the vertical line [G] is aligned ±10μs from the wave center of [2]. If [G] is deviated, align [G] at the center of the wave [2] by sliding the CCD PCB to left and right.



2. Adjustment of offset.

a. Set a black document.

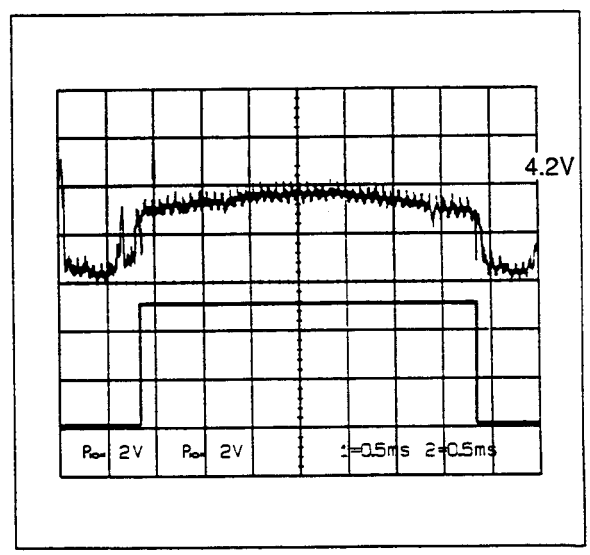
b. Adjust VR202 on CCD PCB to 0V.



3. Adjustment of gain.

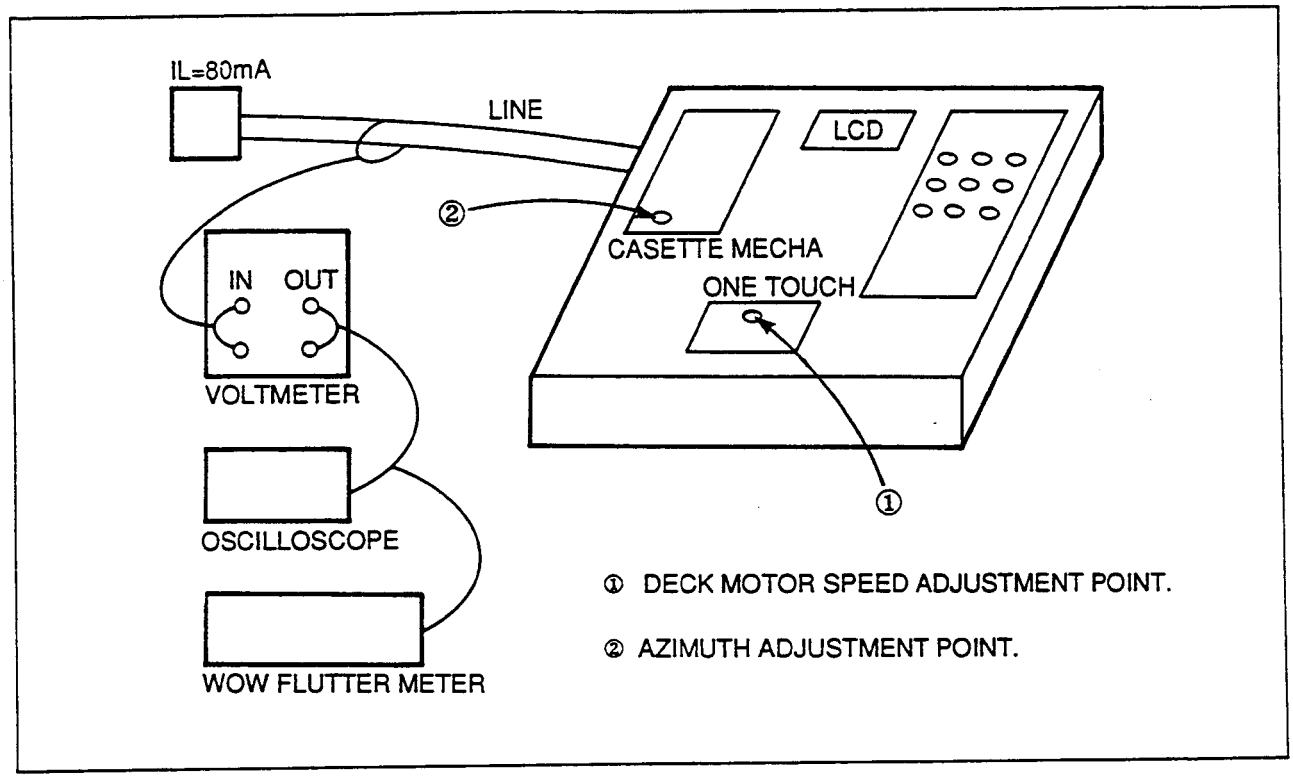
a. Remove the document.

b. Adjust VR201 on CCD PCB to 4.0–4.2V.



TELEPHONE ANSWERING DEVICE (TAD) ADJUSTMENT METHOD

1.Measurement Picture



2. Method

1. Press Function button, # and 4 key insequence display reads "TEST 4", press Enter button display reads "DECK TEST", press Enter button.
2. Set a tape for adjustment (0A—W411), press PLAY button.
3. Adjust DECK MOTOR SPEED to set 3KHz±1% by VR301 on wow FLUTTER METER.
4. Adjust azimas screw to peak on VOLTMETER.

SERVICE PARAMETER

SERVICE PARAMETER

Set DIAL TYPE PULSE

Dial system
Tone
Pulse

Set CABLE EQ. 1.8Km

ϕ0.4 Cable length
0Km
1.8Km
3.6Km
7.2Km

Set VOICE MESS 1 TIME

Number of voice message
1 time ~ 3 time

Set PAPER Sens. Normal Sens.

Kind of paper
Normal Sens.
High Sens.

Enter XMT Level -10.0dBm

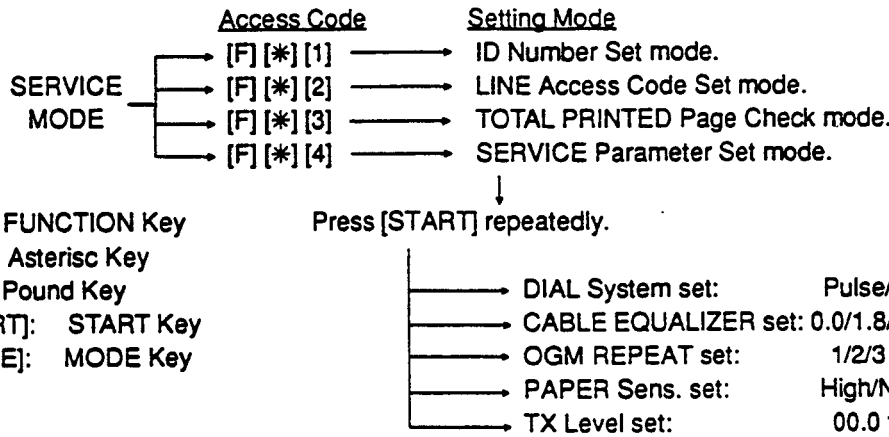
Transmit level attenuator
-00.0 dBm ~ -15.9 dBm

Note:
Press Enter button repeatedly to choose a desired parameter, key in proper numerical keypad, press Enter button to set.

SERVICE/TEST MODES SETTING INSTRUCTIONS

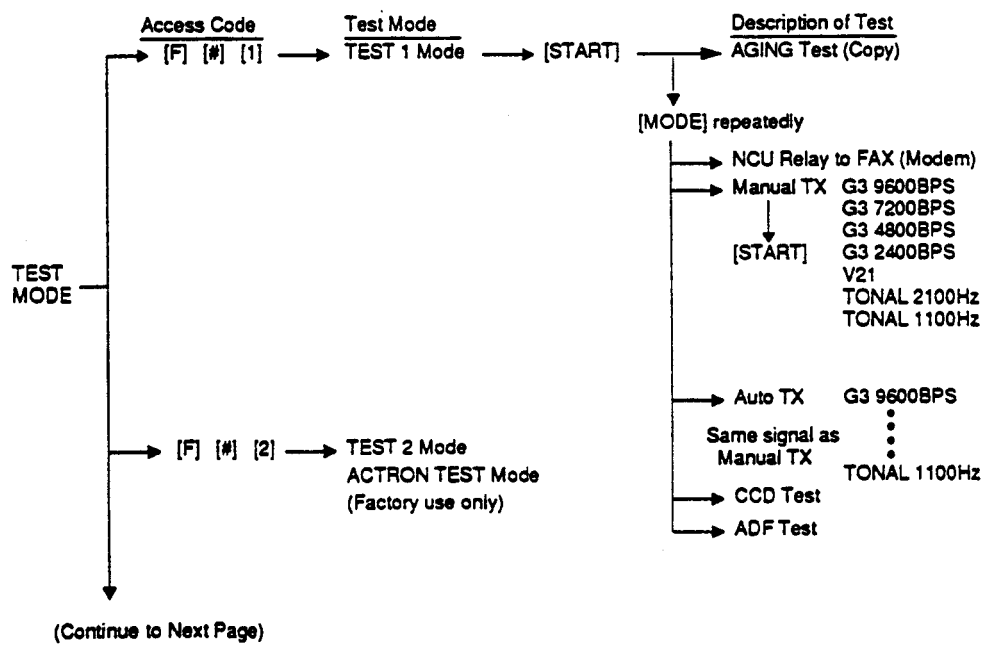
1) Press [FUNCTION] [01] [01] [2] [7] [1] in sequence. Then the machine emit a beep to let you know there is ready for the SERVICE and TEST modes.
   [01] = One Touch key
2) Now you can access the SERVICE and TEST modes as described below:
   After you have set SERVICE or TEST mode, turn the POWER "OFF/ON" to return to the Standby mode.

SERVICE MODE



[F]: FUNCTION Key
[*]: Asterisc Key
[#]: Pound Key
[START]: START Key
[MODE]: MODE Key

TEST MODE



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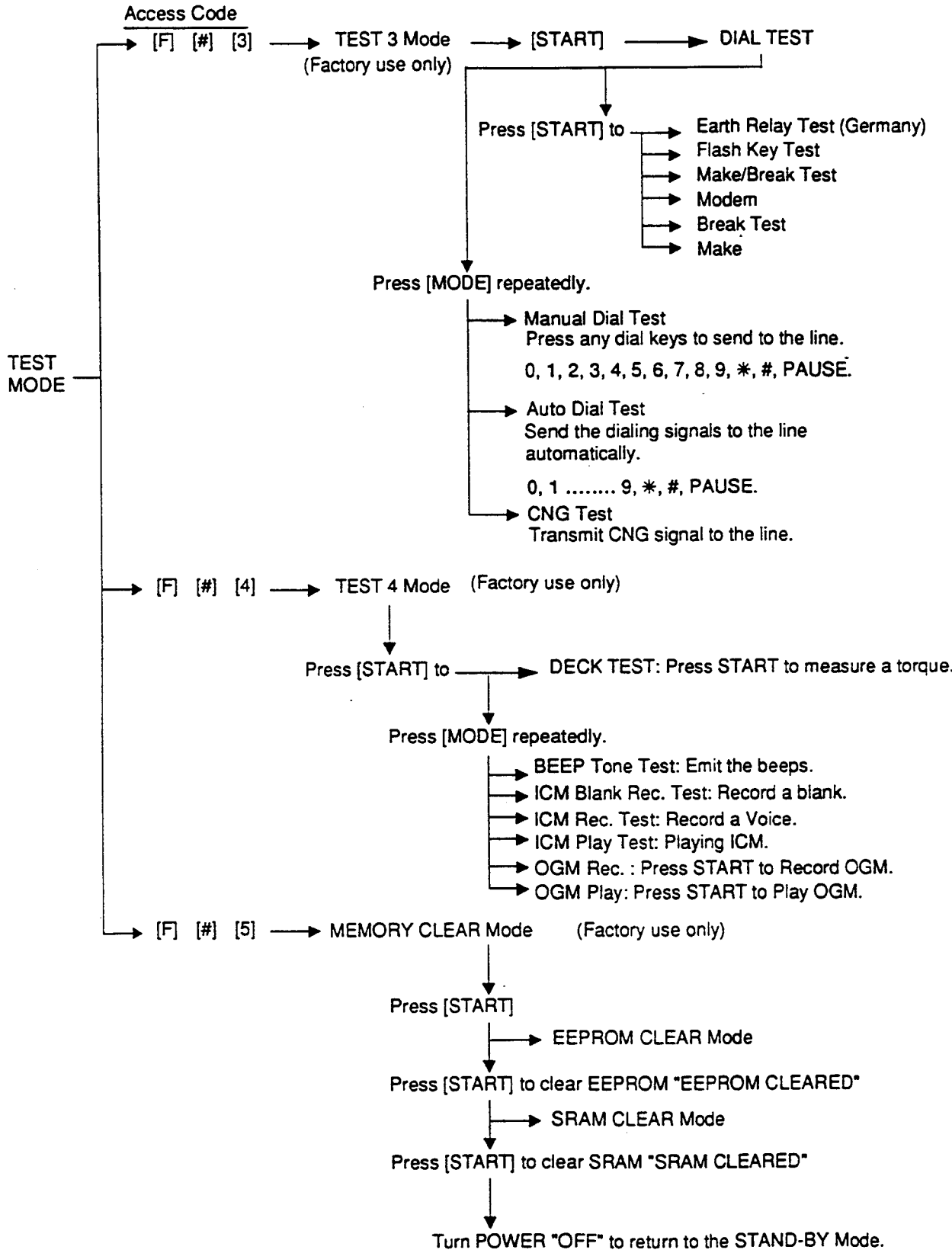

Access Code
[F] [#] [3]
TEST 3 Mode
(Factory use only)
[START]
DIAL TEST
Press [START] to
Earth Relay Test (Germany)
Flash Key Test
Make/Break Test
Modem
Break Test
Make
Press [MODE] repeatedly.
Manual Dial Test
Press any dial keys to send to the line.
0, 1, 2, 3, 4, 5, 6, 7, 8, 9, *, #, PAUSE.
Auto Dial Test
Send the dialing signals to the line automatically.
0, 1 ..... 9, *, #, PAUSE.
CNG Test
Transmit CNG signal to the line.
TEST MODE
[F] [#] [4]
TEST 4 Mode (Factory use only)
Press [START] to
DECK TEST: Press START to measure a torque.
Press [MODE] repeatedly.
BEEP Tone Test: Emit the beeps.
ICM Blank Rec. Test: Record a blank.
ICM Rec. Test: Record a Voice.
ICM Play Test: Playing ICM.
OGM Rec. : Press START to Record OGM.
OGM Play: Press START to Play OGM.
[F] [#] [5]
MEMORY CLEAR Mode (Factory use only)
Press [START]
EEPROM CLEAR Mode
Press [START] to clear EEPROM "EEPROM CLEARED"
SRAM CLEAR Mode
Press [START] to clear SRAM "SRAM CLEARED"
Turn POWER "OFF" to return to the STAND-BY Mode.

FAX TEST1 MODE1

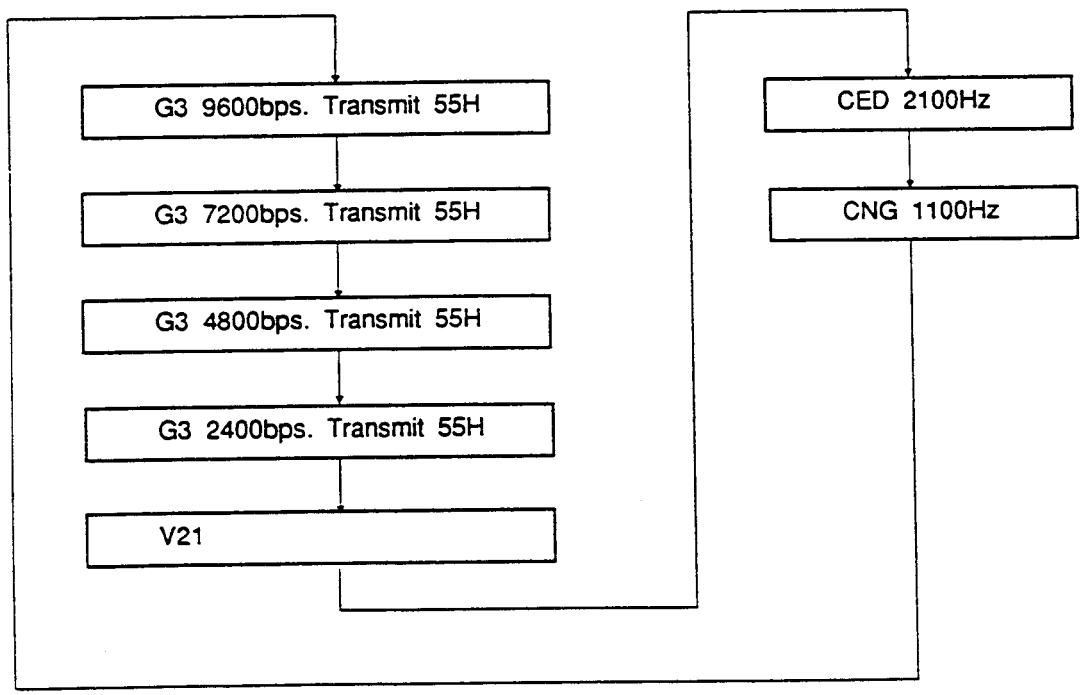
This mode 1 is used for life ageing test purpose.
Apparatus will start copying function continuously with 1cm/1hour. Apparatus will stop copying when the recording paper is run out by depressing the MODE button.

FAX TEST1 MODE2

The relay (RL402) on N. C. U. circuit will be switched over to facsimile side (Modem side) from telephone side.

FAX TEST1 MODE3

Tel-line will be connected to facsimile side (RL402) and signals described as below are transmitted to the Tel-line.
Depress the START button to change the signal.



Note: Signals are continuous tone.

FAX TEST1 MODE4

This mode 4 is identical with mode 3 except transmitting signals (each signal will be transmitted for 3 sec. periods) are change automatically without depressing START button.

FAX TEST1 MODE5

This mode 5 is used for CCD adjustment Depress Start button to light LED array.

FAX TEST1 MODE6

This mode 6 is A. D. F (Auto Document Feeder) test.

FAX TEST2

Use for production test at factory.

FAX TEST3

MAKE/BREAK TEST

Use for production test at factory.

MANUAL DIAL TEST

Dialing signal will be transmitted to the Telephone line when depress dialing buttons ([1]–[0], [*], [#], [PAUSE]).

Note: [*], [#] keys do not function in Pulse Dial mode.

DIAL TEST

Dialing signals (pulse or tone) will be transmitted automatically to the telephone line in numerical order as shown in below

[1] [2] [3] [4] [5] [6] [7] [8] [9] [*] [0] [#] [PAUSE] [1] ----------→

output in order without depressing keys.

Note: [*], [#] keys do not function in Pulse Dial mode.

CNG TEST

CNG (1100Hz) tone will be transmitted continuously to the Telephone line.

FAX TEST4

This mode is used for TAD adjustment select operation by depressing MODE button, depress START button.

FAX TEST5

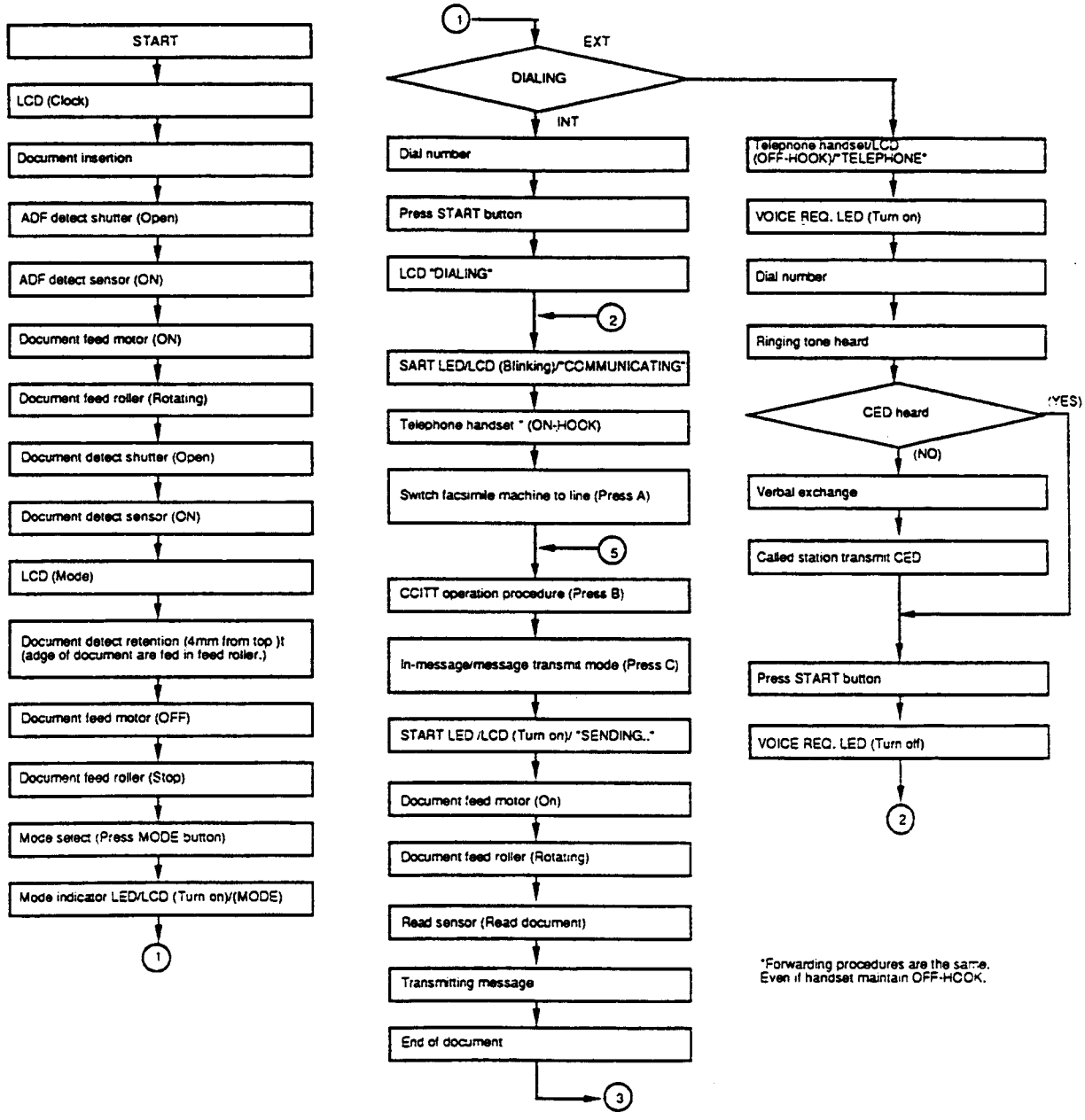
MEMORY CLEAR

All data are erased except for "USER'S PARAMETER" and SERVICE PARAMETER".

FLOW DIAGRAMS

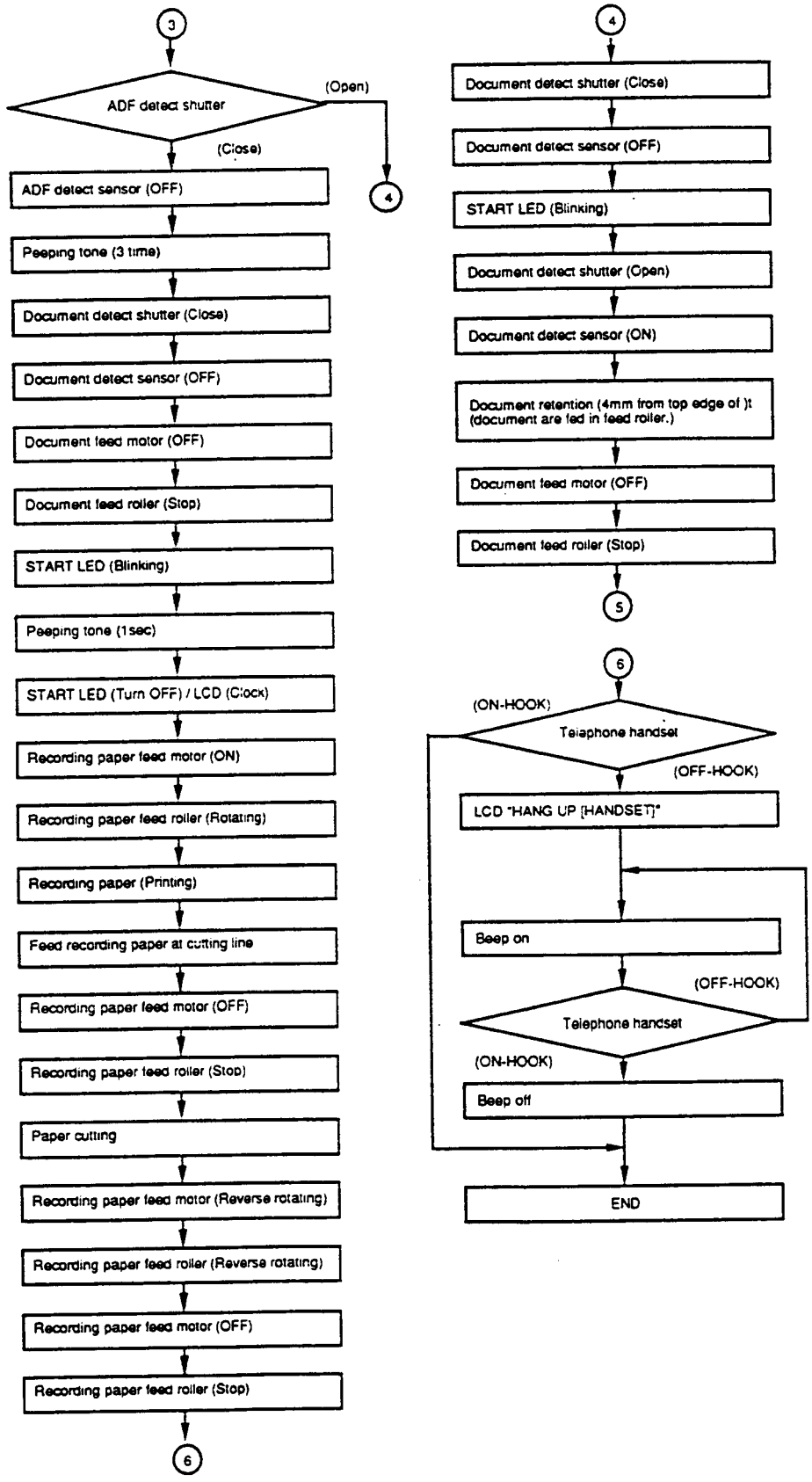
OPERATION FLOW DIAGRAMS

(Transmittion)

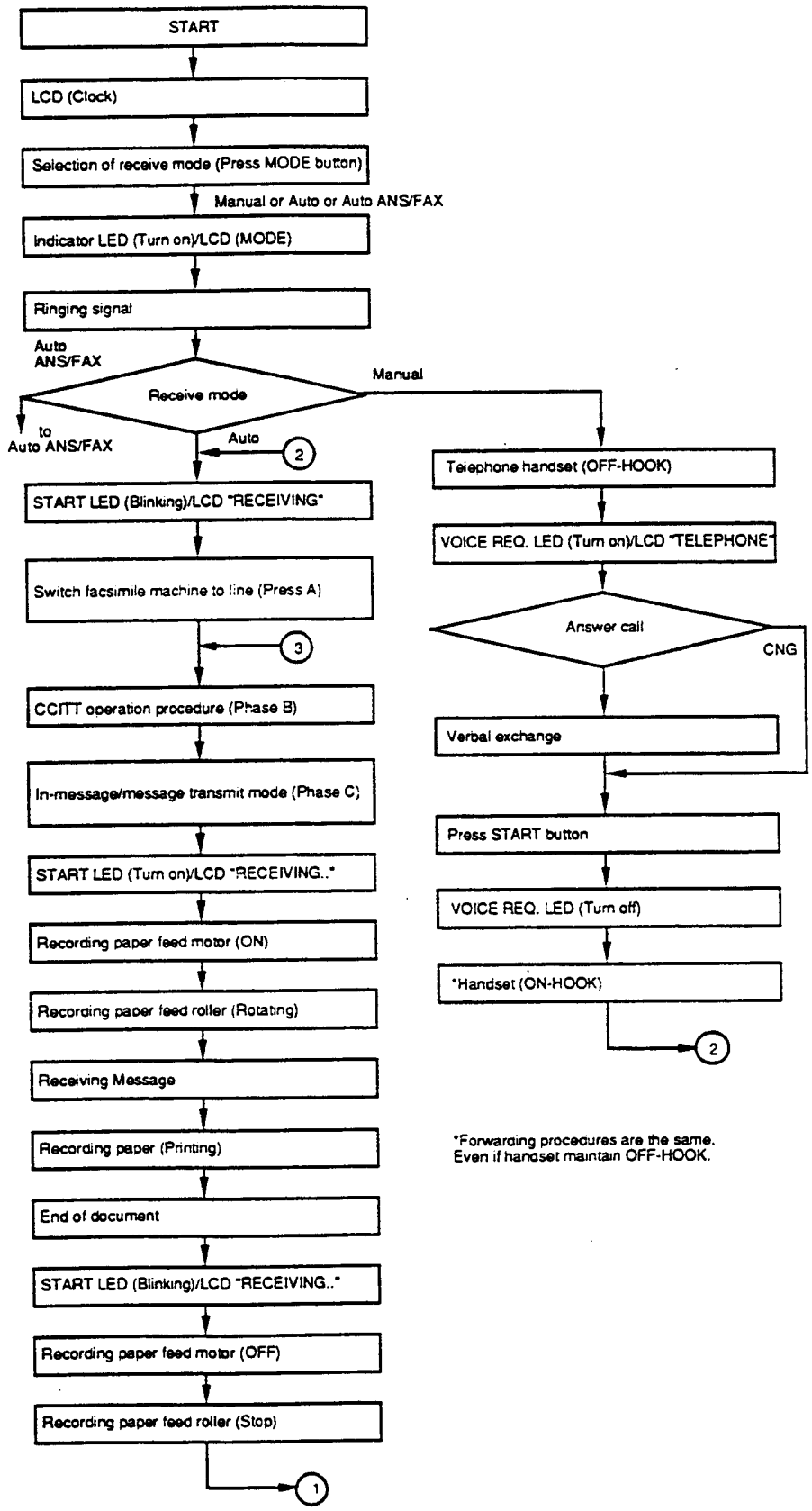


*Forwarding procedures are the same. Even if handset maintain OFF-HOOK.

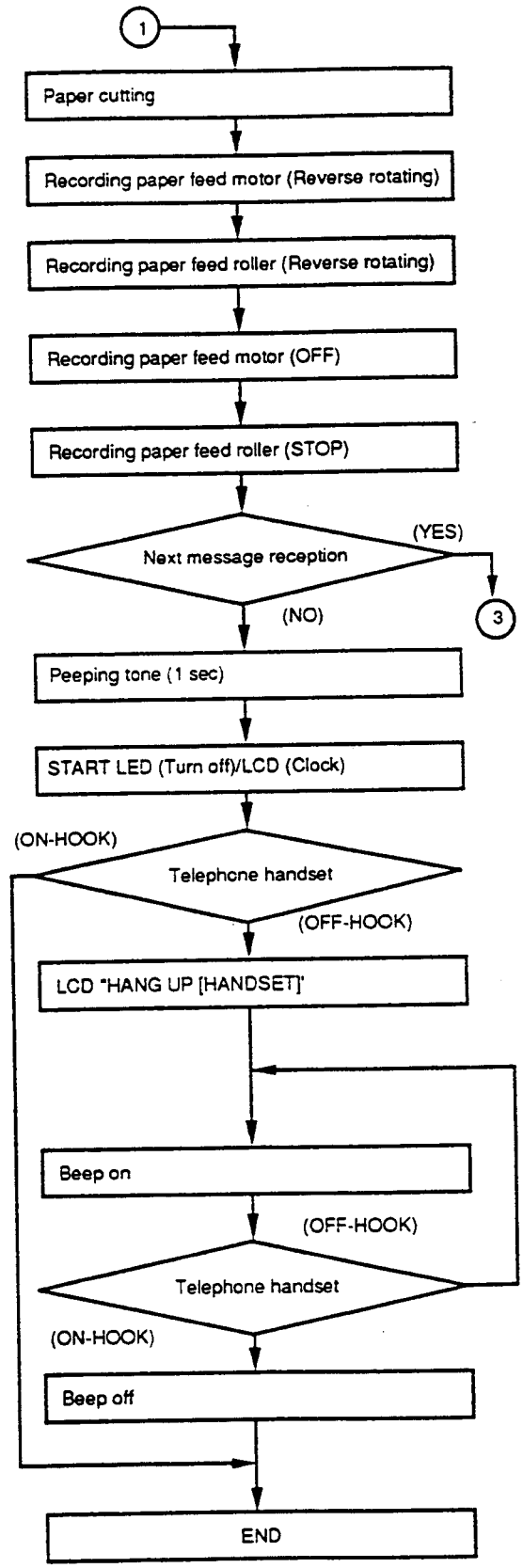
(Transmittion)



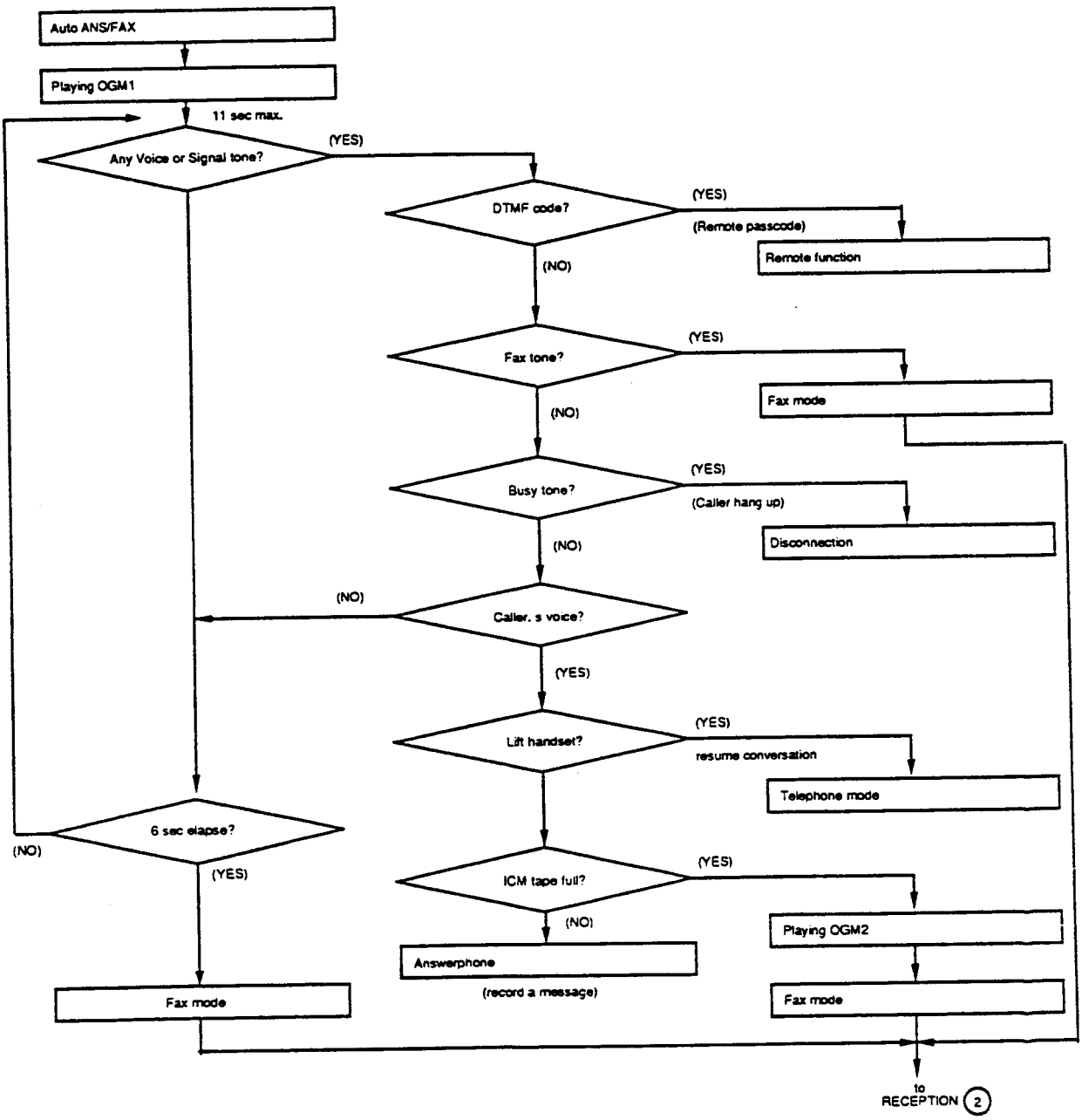
(Reception)


START
LCD (Clock)
Selection of receive mode (Press MODE button)
Manual or Auto or Auto ANS/FAX
Indicator LED (Turn on)/LCD (MODE)
Ringing signal
Auto ANS/FAX
Receive mode
Manual
to Auto ANS/FAX
Auto
2
START LED (Blinking)/LCD "RECEIVING"
Switch facsimile machine to line (Press A)
3
CCITT operation procedure (Phase B)
In-message/message transmit mode (Phase C)
START LED (Turn on)/LCD "RECEIVING.."
Recording paper feed motor (ON)
Recording paper feed roller (Rotating)
Receiving Message
Recording paper (Printing)
End of document
START LED (Blinking)/LCD "RECEIVING.."
Recording paper feed motor (OFF)
Recording paper feed roller (Stop)
1
Telephone handset (OFF-HOOK)
VOICE REQ. LED (Turn on)/LCD "TELEPHONE"
Answer call
CNG
Verbal exchange
Press START button
VOICE REQ. LED (Turn off)
*Handset (ON-HOOK)
2
*Forwarding procedures are the same.
Even if handset maintain OFF-HOOK.

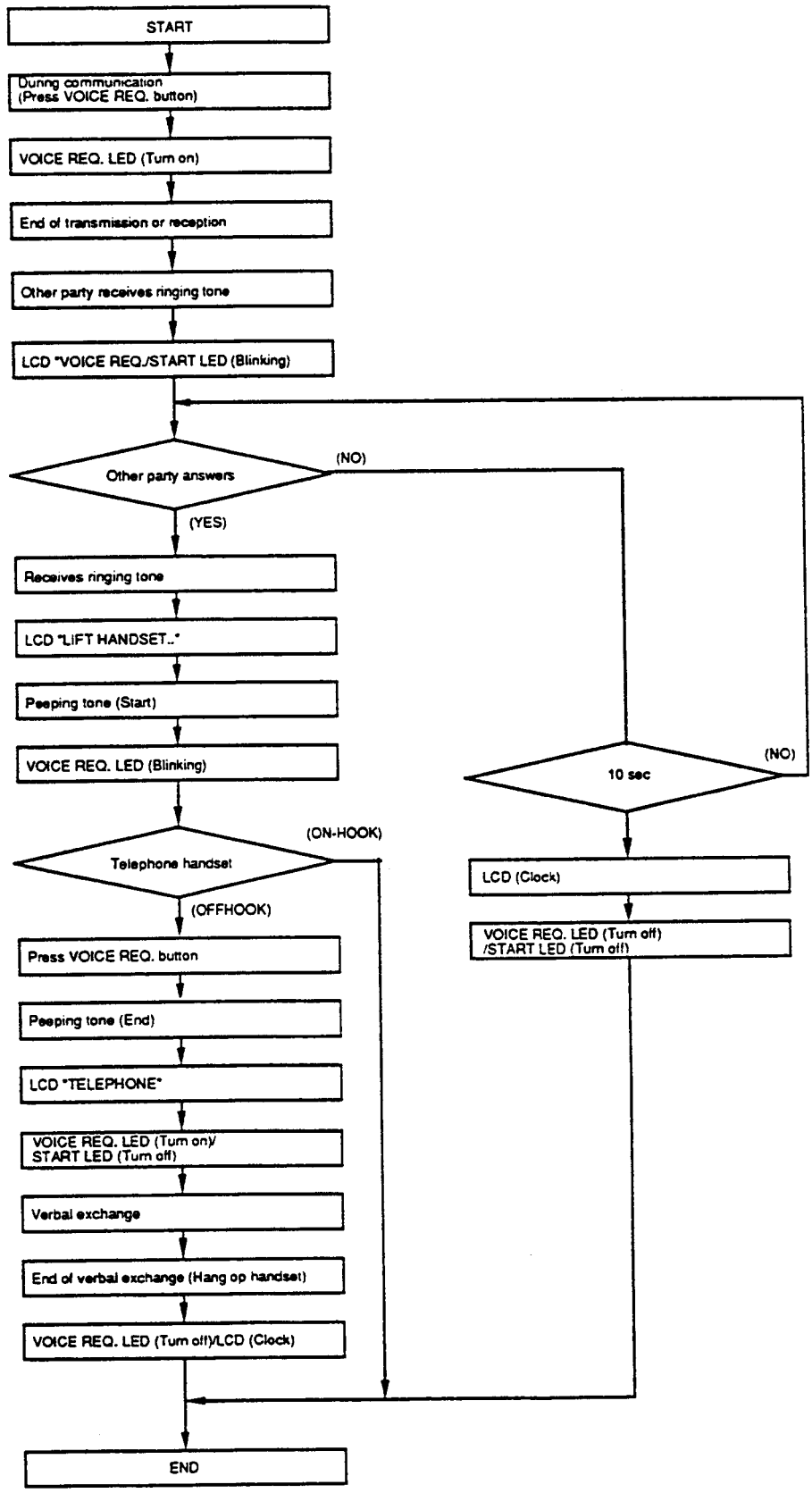
(Reception)


1
Paper cutting
Recording paper feed motor (Reverse rotating)
Recording paper feed roller (Reverse rotating)
Recording paper feed motor (OFF)
Recording paper feed roller (STOP)
Next message reception
(YES)
(NO)
3
Peeping tone (1 sec)
START LED (Turn off)/LCD (Clock)
(ON-HOOK)
Telephone handset
(OFF-HOOK)
LCD "HANG UP [HANDSET]"
Beep on
(OFF-HOOK)
Telephone handset
(ON-HOOK)
Beep off
END

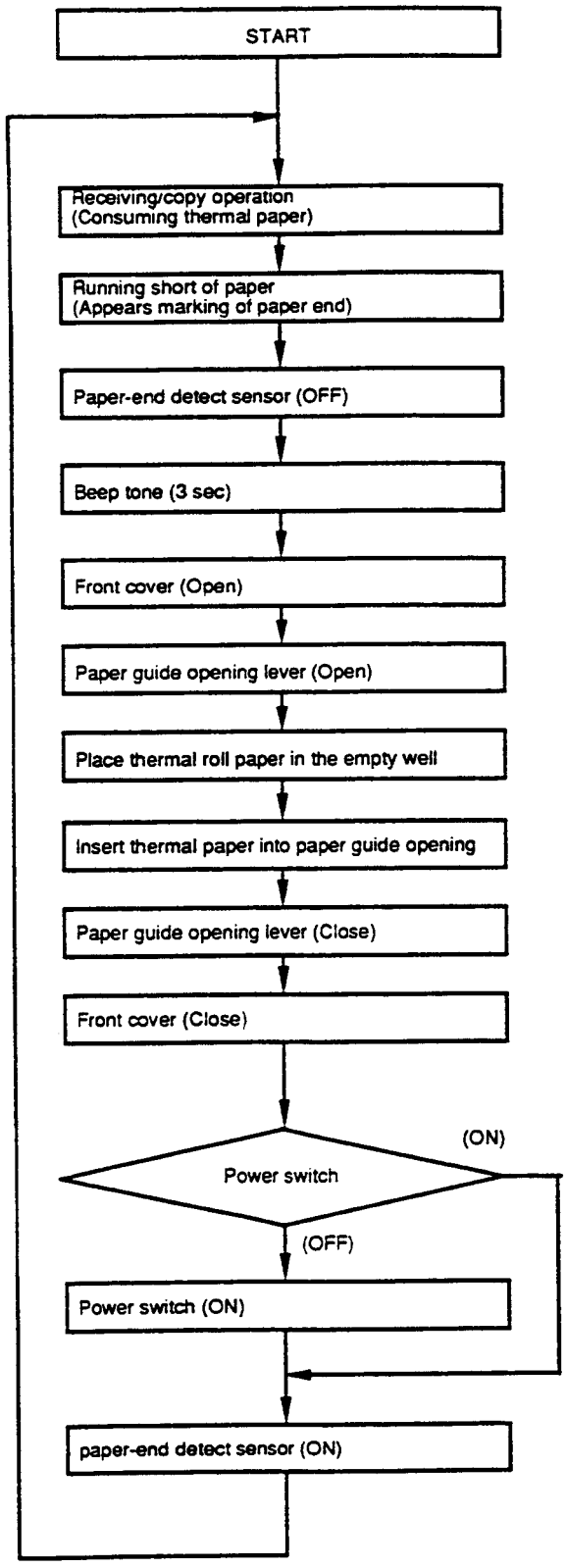
(Reception Sequence on Auto ANS/FAX)



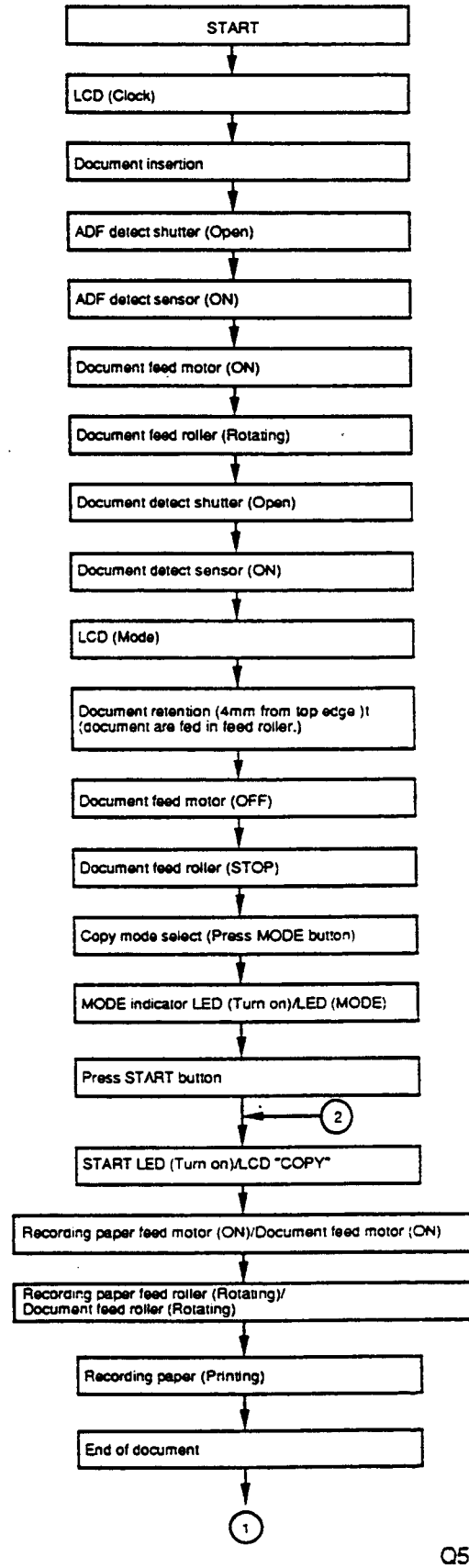
(Voice Request after Document Transmission or Reception)



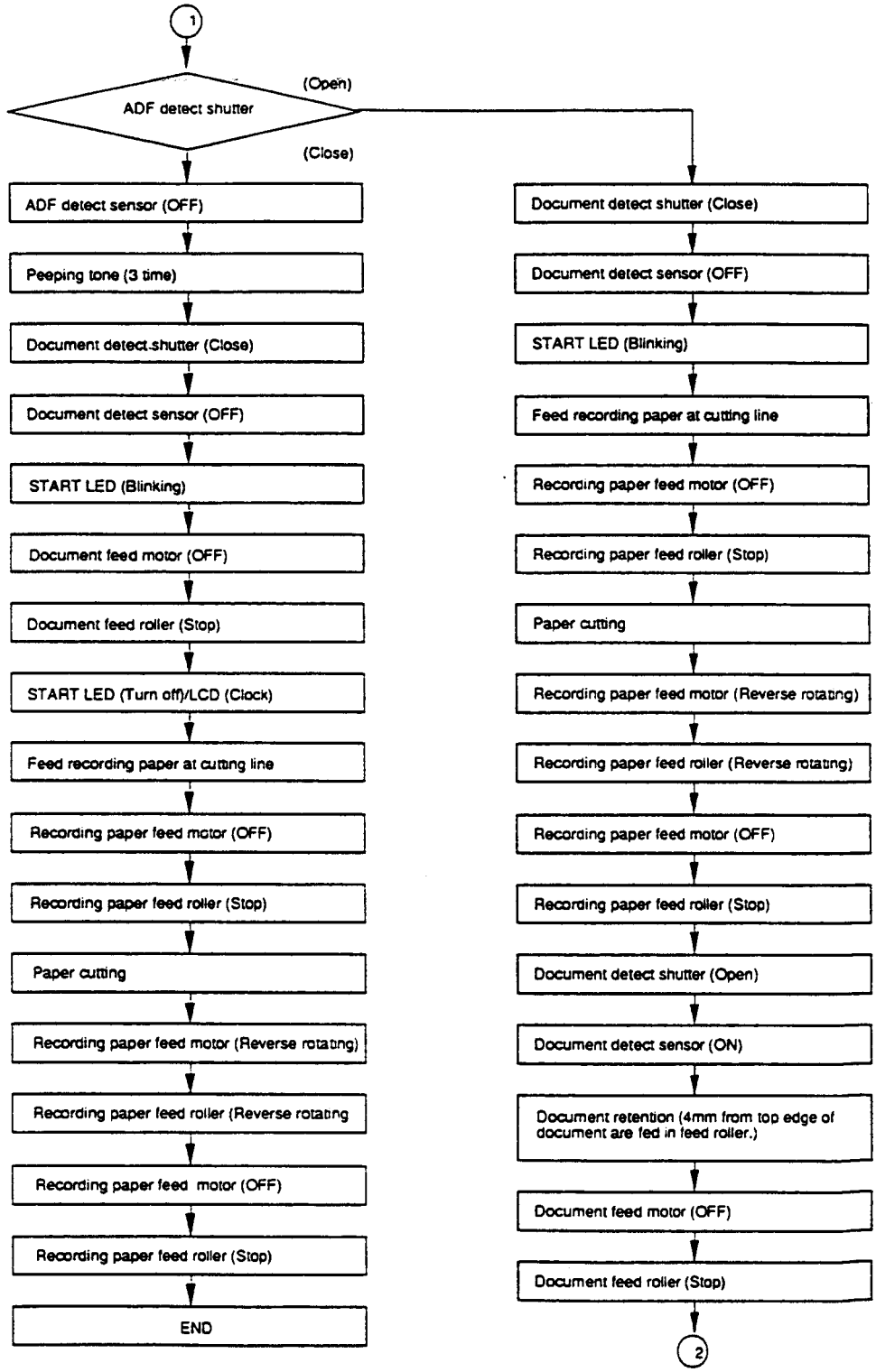
(To Set Thermal Roll Paper)



(Copy)



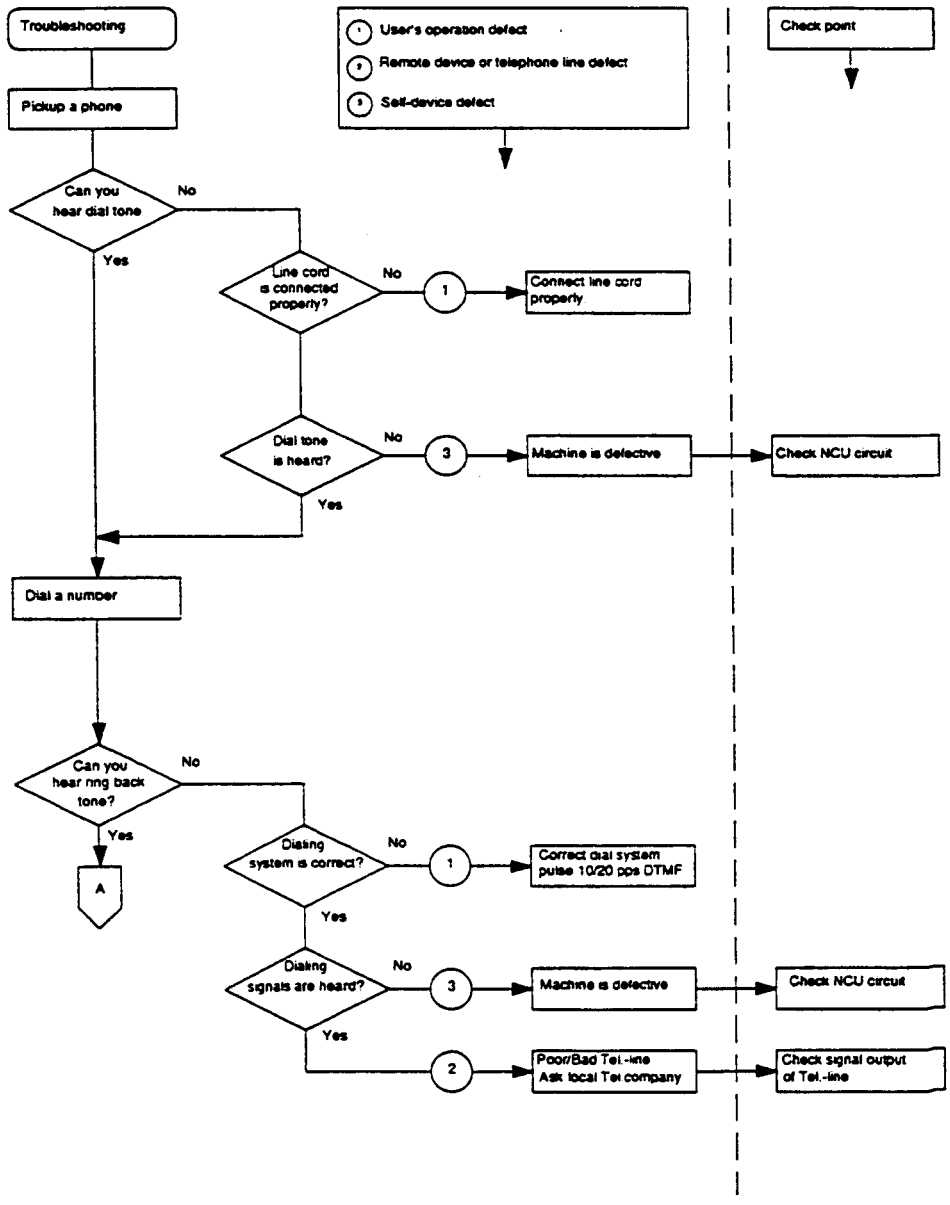
(Copy)

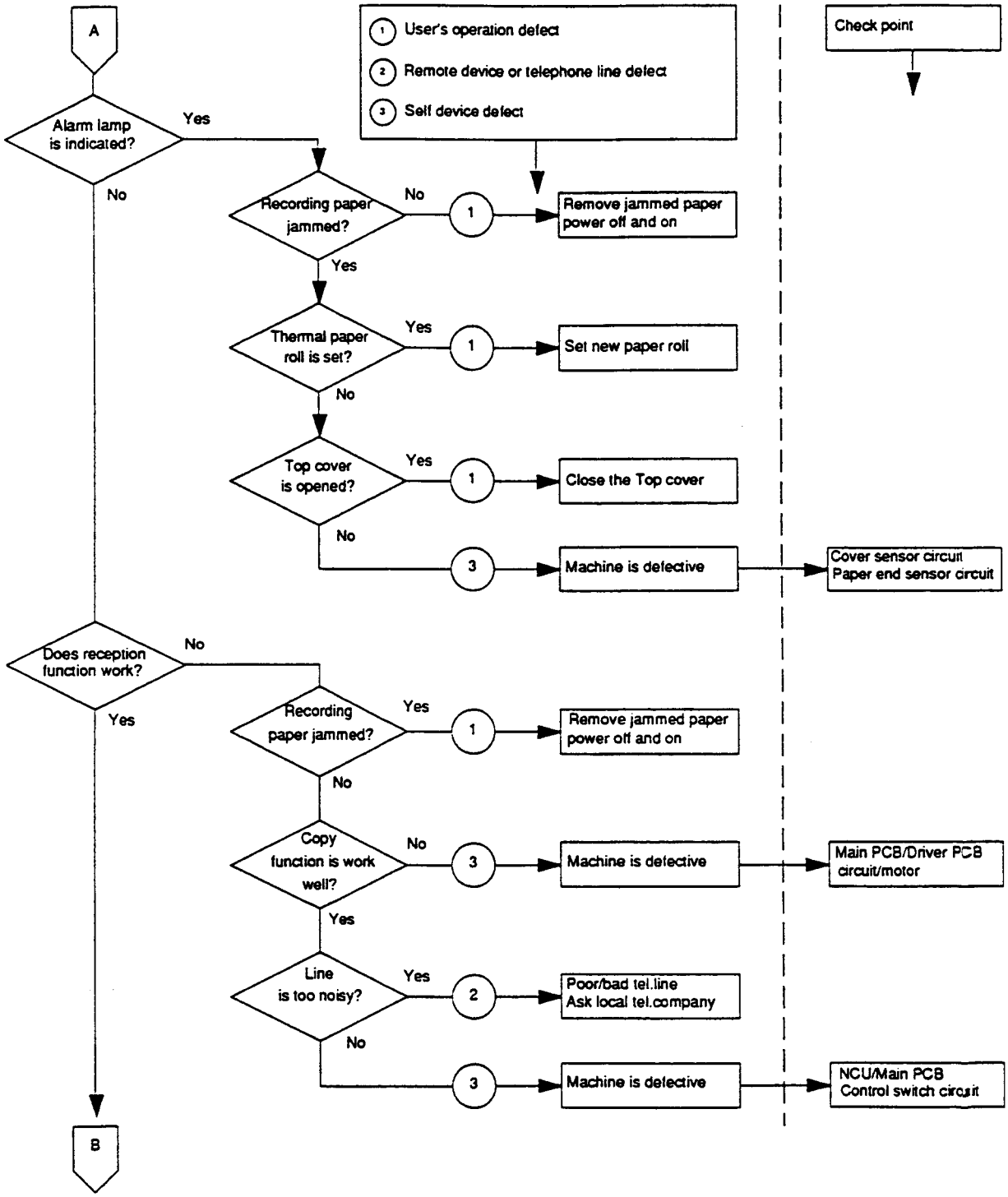

1
ADF detect shutter
(Open)
(Close)
ADF detect sensor (OFF)
Peeping tone (3 time)
Document detect shutter (Close)
Document detect sensor (OFF)
START LED (Blinking)
Document feed motor (OFF)
Document feed roller (Stop)
START LED (Turn off)/LCD (Clock)
Feed recording paper at cutting line
Recording paper feed motor (OFF)
Recording paper feed roller (Stop)
Paper cutting
Recording paper feed motor (Reverse rotating)
Recording paper feed roller (Reverse rotating
Recording paper feed motor (OFF)
Recording paper feed roller (Stop)
END
Document detect shutter (Close)
Document detect sensor (OFF)
START LED (Blinking)
Feed recording paper at cutting line
Recording paper feed motor (OFF)
Recording paper feed roller (Stop)
Paper cutting
Recording paper feed motor (Reverse rotating)
Recording paper feed roller (Reverse rotating)
Recording paper feed motor (OFF)
Recording paper feed roller (Stop)
Document detect shutter (Open)
Document detect sensor (ON)
Document retention (4mm from top edge of document are fed in feed roller.)
Document feed motor (OFF)
Document feed roller (Stop)
2

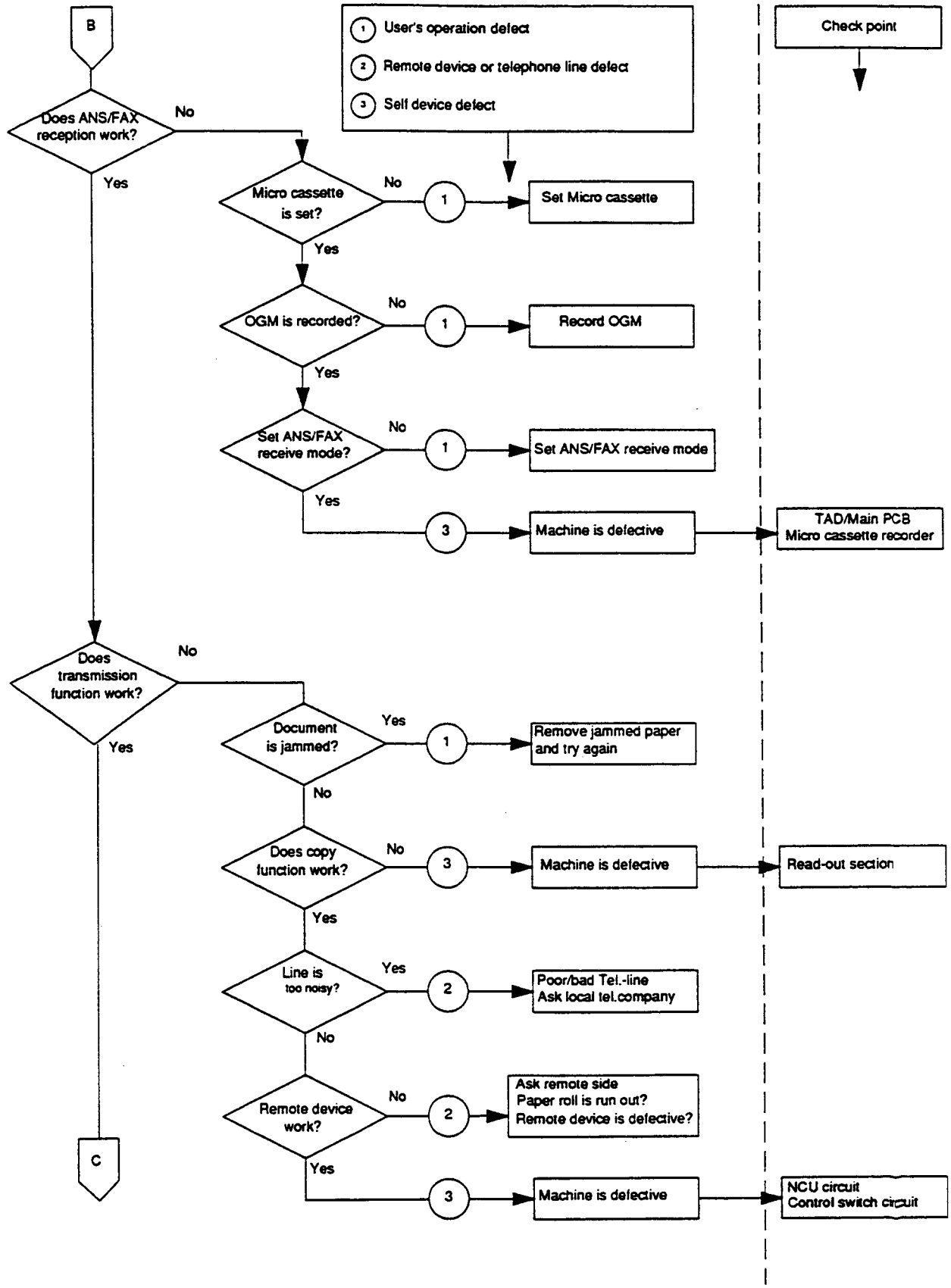
TROUBLESHOOTING INSTRUCTIONS

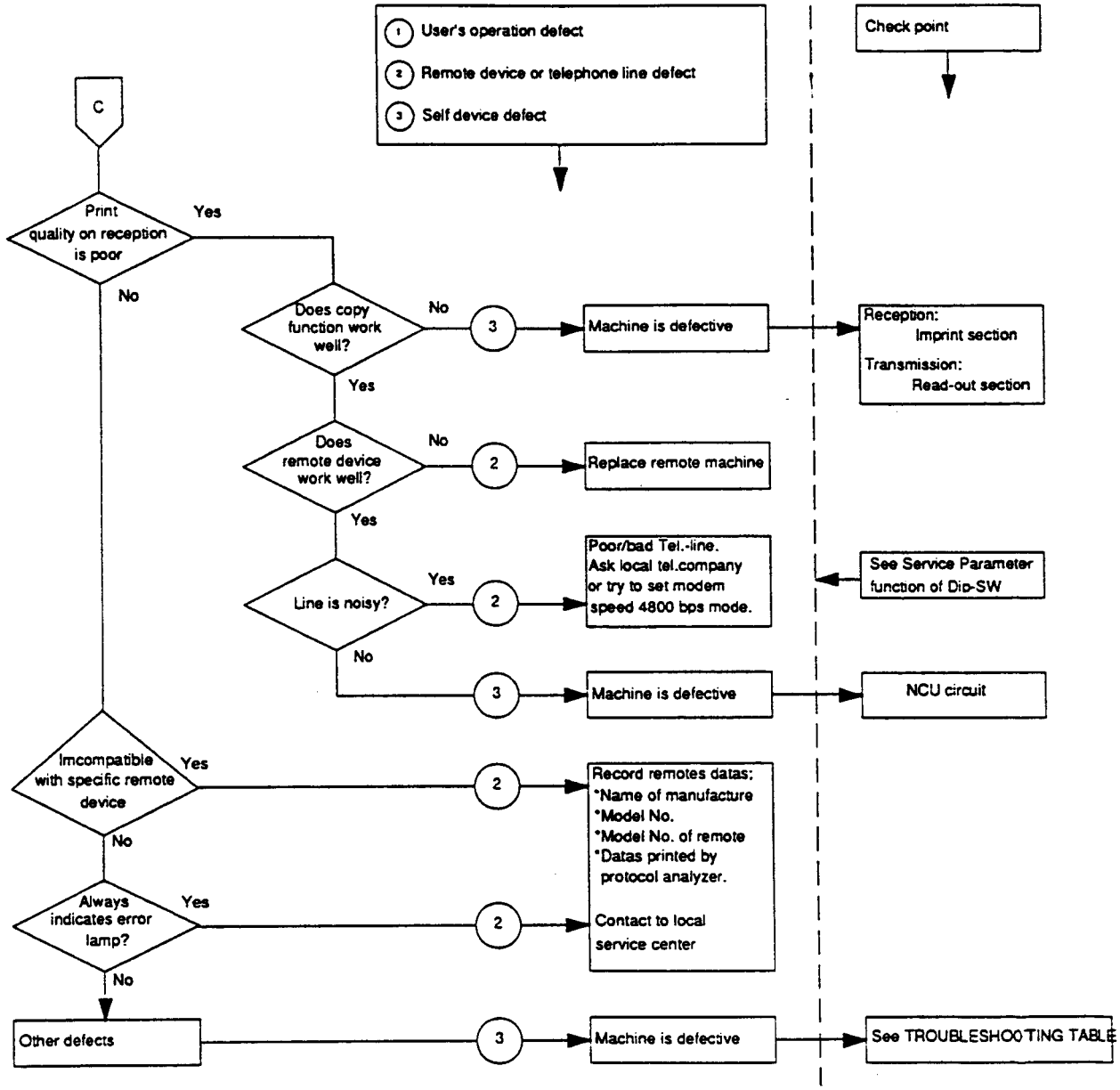
In order to rapidly diagnose the cause of a problem encountered during use of the unit.
The cause first be classified as one of the following three.
(1) A malfunction resulting from the way user the unit.
(1) A malfunction resulting from a problem of the other unit or of the telephone circuit.
(1) A malfunction resulting from a problem of this unit.
Refer to the "TROUBLESHOOTING FLOW DIAGRAM" (in a subsequent section) to classify problems into one of the three classifications described above.
If the problem is diagnosed as a malfunction resulting from a problem of this unit, refer to the "TROUBLESHOOTING TABLE". Check the error code imprinted on the thermal recording paper, and then refer to the "ERROR CODE TABLE".

TROUBLESHOOTING FLOW DIAGRAM




A
1 User's operation defect
2 Remote device or telephone line defect
3 Self device defect
Check point
Alarm lamp is indicated?
Yes
No
Recording paper jammed?
No
1
Remove jammed paper power off and on
Yes
Thermal paper roll is set?
Yes
1
Set new paper roll
No
Top cover is opened?
Yes
1
Close the Top cover
No
3
Machine is defective
Cover sensor circuit
Paper end sensor circuit
Does reception function work?
No
Yes
Recording paper jammed?
Yes
1
Remove jammed paper power off and on
No
Copy function is work well?
No
3
Machine is defective
Main PCB/Driver PCB circuit/motor
Yes
Line is too noisy?
Yes
2
Poor/bad tel.line Ask local tel.company
No
3
Machine is defective
NCU/Main PCB Control switch circuit
B


B
Does ANS/FAX reception work?
No
Yes
1 User's operation defect
2 Remote device or telephone line defect
3 Self device defect
Check point
Micro cassette is set?
No
1
Set Micro cassette
Yes
OGM is recorded?
No
1
Record OGM
Yes
Set ANS/FAX receive mode?
No
1
Set ANS/FAX receive mode
Yes
3
Machine is defective
TAD/Main PCB
Micro cassette recorder
Does transmission function work?
No
Yes
Document is jammed?
Yes
1
Remove jammed paper and try again
No
Does copy function work?
No
3
Machine is defective
Read-out section
Yes
Line is too noisy?
Yes
2
Poor/bad Tel.-line
Ask local tel.company
No
Remote device work?
No
2
Ask remote side
Paper roll is run out?
Remote device is defective?
Yes
3
Machine is defective
NCU circuit
Control switch circuit
C


1 User's operation defect
2 Remote device or telephone line defect
3 Self device defect
Check point
C
Print quality on reception is poor
Yes
No
Does copy function work well?
No
3
Machine is defective
Reception: Imprint section
Transmission: Read-out section
Yes
Does remote device work well?
No
2
Replace remote machine
Yes
Line is noisy?
Yes
2
Poor/bad Tel.-line. Ask local tel.company or try to set modem speed 4800 bps mode.
See Service Parameter function of Dip-SW
No
3
Machine is defective
NCU circuit
Imcompatible with specific remote device
Yes
2
Record remotes datas: *Name of manufacture *Model No. *Model No. of remote *Datas printed by protocol analyzer.
No
Always indicates error lamp?
Yes
2
Contact to local service center
No
Other defects
3
Machine is defective
See TROUBLESHOOTING TABLE

	Description of defect	Probable cause	Suggested remedy
1	No power	1) Defective Power Supply unit.	Replace a Power Supply unit.
		2) Disconnection of primary or secondary connectors.	Connect the connectors properly.
		3) Thermal Protection circuit is activated (TH terminal). Tempera ture reaches over 80 C.	Check Thermal Protection circuit.
2	Malfunction when power is turned (LCD or LED indications are abnormal.)	1) Defective Main PCB and malfunction of MPU.	Replace the Main PCB.
		2) Low Power DC voltage due to defective Power Supply unit.	Check DC voltages on Power Supply. Replace a Power Supply unit.
3	Disconnection of line on Transmission mode.	1) Improper Transmit Level.	Check transmit level, and set the transmit level properly by setting TX ATT in Service Parameters.
		2) Incompatibility / Communication error.	Contact with service center, inform data; 1) Indicated error code: 2) Data printed by Protocol Analyzer. 3) Model No. of Remote Machine. 4) Description of fault.
4	Print quality is poor on Reception mode or Transmission mode.	1) Telephone is noisy.	Check with Local Telephone Company.
		2) Machine connection location is too far distance from local telephone switching device.	Set cable equalization in Service Parameters properly.
5	Dialing operation does not function properly.	1) Dialing system is set im properly.	Set dialing system in Service Parameters properly. Pulse Dial (10pps) or Tone Dial (DTMF).
		2) Dial circuit is defective.	Repair or replace the NCU PCB.
6	Document is not taken in when placed for transmission.	1) ADF Sensor circuit is defective. (Sensor PCB, shutter of sensor, etc.)	Replace the defective components or Sensor PCB.
		2) Drive mechanism is defective. Such as Motor, Driving gears.	Replace the defective components.
		3) Malfunction of the Main PCB or Driver PCB. (Motor Drive circuit, Motor Interface circuit etc.)	Repair the Main PCB or Drive PCB.
7	During a transmission, reception or copying operating driving mechanism is noisy or emitting strange sound.	1) Motor (RM/PM) is defective.	Replace the motor.
		2) Gears are damaged on Roller and Motor Ass'y.	Replace the Roller Ass'y or Motor Ass'y.
		3) Malfunction of the Main PCB or Driver PCB. (Motor Drive circuit, Motor Interface circuit etc.)	Repair the Main PCB or Driver PCB.
8	Tel-line will not switch over to fax on Reception or Transmission mode.	1) NCU circuit is defective. Such as loop current detection, relay, or Relay Driver circuit.	Replace the defective portio n with in NCU PCB or Main PCB.
		2) Main PCB Ass'y is defective.	Replace the defective portio n or Main PCB Ass'y.
		3) Start Switch is defective.	Replace the Start Switch.

	Description of defect	Probable cause	Suggested remedy
9	Transmission operation does not function when in the Transmission mode, Telephone Line switched over to fax.	1) NCU circuit is defective. Wire Ass'y, Audio Transformer and Amplifier etc.	Replace the defective portion.
		2) Main PCB Ass'y is defective. Such as Modem Interface, image data processor portion etc.	Replace the defective portion or Main PCB Ass'y.
		3) Image Sensor unit is defective.	Replace the Image Sensor unit.
10	Image data errors on Transmission mode. (In case of machine problem not caused by line condition.)	1) Main PCB is defective.	Replace the Main PCB Ass'y.
		2) NCU circuit is defective. Such as Telephone Line circuit and Amplifier circuit for transmission.	Replace the defective portion or NCU PCB Ass'y.
11	Paper end indication is always functioned.	1) Paper End Sensor circuit is defective.	Re-adjust the Paper End Sensor circuit or replace the Paper End Sensor PCB Ass'y.
		2) Main PCB Ass'y is defective. Interface circuit for Paper End Sensor.	Repair or replace the Main PCB Ass'y.
12	Auto-receive function does not work.	1) NCU circuit is defective. Such as Ringer Detection circuit.	Repair or replace the NCU PCB Ass'y.
		2) Main PCB Ass'y is defective. Such as Interface circuit for Ringer Detection.	Repair or replace the Main PCB Ass'y.
13	Reception operation does not function when in the Reception mode Telephone Line switched over to Fax.	1) NCU circuit is defective. Such as Telephone Line, Audio Transformer	Repair or replace the NCU PCB Ass'y.
		2) Main PCB Ass'y is defective. Such as Interface circuit for modem.	Repair or replace the Main PCB Ass'y.
14	Print quality is poor on Reception mode. (In case of machine problem, not caused by line condition.)	1) NCU PCB Ass'y is defective. Such as Amplifier circuit for reception.	Repair or replace the NCU PCB Ass'y.
		2) Main PCB Ass'y is defective. Such as Interface circuit for modem.	Repair or replace the Main PCB Ass'y.
15	Copy impressions are flawed, unclear vertical lines (white or black) appear on Local Copy mode or Reception mode.	1) Thermal Print Head is dirty or otherwise contained.	Clean the Thermal Print Head.
		2) Thermal Print Head is defective. Impression Element is dead.	Replace the Thermal Print Head.
		3) The wire connection for Thermal Print Head is defective.	Replace for wire connection.
		4) Main PCB Ass'y is defective.	Repair the Main PCB Ass'y.
		5) Image Sensor block is defective.	Replace the Image Sensor unit.
		6) The glass is dusty.	Clean the glass.
		7) The mirror is dusty.	Clean the mirror.
		8) Lead wire intercept optical line.	Correct the wire alignment.

	Description of defect	Probable cause	Suggested remedy
16	During copying of data being received, horizontal lines appear and/or the impressions are deviated or irregular.	1) Driving mechanism is defective. Such as gear, roller and motor.	Replace the defective portion.
		2) Main PCB Ass'y is defective. Portion such as 1 chip CPU or Modem.	Repair or replace the Main PCB Ass'y.
		3) Driver PCB Ass'y is defective.	Repair or replace Driver PCB Ass'y.
17	Printed out letters is fading.	1) Improper thermal paper used.	Replace the Proper Thermal Paper.
		2) Power Supply voltage of Thermal Print Head is too low (24V).	Replace the Power Supply unit.
18	Cutter does not work.	1) Cutter Paper unit is defective.	Replace the Cutter unit.
		2) Main PCB Ass'y is defective.	Replace the Main PCB Ass'y.
19	Micro Cassette Recorder does not work.	1) TAD PCB Ass'y is defective.	Replace TAD PCB Ass'y.
		2) Main PCB Ass'y is defective.	Replace Main PCB Ass'y.
		3)Micro Cassette Recorder is defective.	Replace Micro Cassette Recorder.

TERMINAL DESCRIPTION

MAIN MPU (IC: Z80180) or (HD64180Z)

Pin No.	I/O	Signal Name	Description
1	I	VSS	Ground
2	I	VSS	Ground
3	—	X'TAL	Unused
4	I	EXTAL	External Clock
5	I	WAIT	Wait
6	—	BUSACK	Unused
7	I	BUSREQ	Bus Request
8	I	RESET	Reset
9	I	NMI	Non-Maskable Interrupt
10	I	INT 0	Interrupt 0
11	I	INT 1	Interrupt 1
12	I	INT 2	Interrupt 2
13	O	ST	Status
14	O	A 0	Address Bus
15	O	A 1	
16	O	A 2	
17	O	A 3	
18	I	VSS	Ground
19	O	A 4	Address Bus
20	O	A 5	
21	O	A 6	
22	O	A 7	
23	O	A 8	
24	O	A 9	
25	O	A 10	
26	O	A 11	
27	O	A 12	
28	O	A 13	
29	O	A 14	
30	O	A 15	
31	O	A 16	
32	O	A 17	
33	—	A 18	Unused
34	I	VCC	Power Supply
35	O	A 19	Address Bus
36	I	VSS	Ground
37	I/O	D 0	Data Bus
38	I/O	D 1	
39	I/O	D 2	
40	I/O	D 3	
41	I/O	D 4	
42	I/O	D 5	
43	I/O	D 6	
44	I/O	D 7	
45	—	RTS 0	Unused
46	I	CTS 0	Unused (Connected to +5V)

Pin No.	I/O	Signal Name	Description
47	I	DCD	Unused (Connected to +5V)
48	—	TXD 0	Unused
49	I	RXA 0	Unused (Connected to Ground)
50	I	DREQ 0	DMA Request for Channel 0
51	—	TXA 1	Unused
52	—	TEST	Unused
53	I	RXA 1	Unused (Connected to Ground)
54	—	REND 0	Unused
55	O	TXS	Transfer Data for Serial I/O Port
56	I	RXS	Receive Data for Serial I/O Port
57	I/O	CKS	Clock for Serial I/O Port
58	I	DREQ 1	Unused (Connected to +5V)
59	—	TEND 1	Unused
60	—	HALT	Unused
61	O	RFSH	Refresh
62	O	IOE	I/O Enable
63	O	ME	Memory Enable
64	O	E	Enable
65	—	MI	Unused
66	O	WR	Write
67	O	RD	Read
68	O	ϕ	System Clock

ONE-CHIP MPU (IC2: UPD7533GB746)

Pin No.	I/O	Signal Name	Description
1	—	P 21	Shading Start Signal
2	O	P 73	Printer Motor Excitation
3	O	P 72	
4	O	P 71	
5	O	P 70	
6	O	P 33	Image-Signal Request
7	O	P 32	Read-Out Tone-Shading Mode Setting
8	O	P 31	
9	O	P 30	
10	I	AVSS	Ground
11	I	AN 3	Detection of Temperature
12	I	AN 2	Detection of Need Temperature
13	I	AN 1	NC
14	I	AN 0	Ground
15	I	VAREF	Reference Input (5V) for Internal A/D Convertor
16	—	NC	NC
17	I	VDD	Power Supply
18	O	P 63	Reader Motor Excitation
19	O	P 62	
20	O	P 61	
21	O	P 60	
22	I	P 13	Ground
23	I	P 12	
24	I	P 11	
25	I	P 10	Power Supply
26	I	P 03	Receive Data for Serial Port
27	O	P 02	Transfer Data for Serial Port
28	I/O	P 01	Clock for Serial I/O Port
29	I	P 00	Interrupt Signal
30	I	RESET	Reset
31	I	DIVSEL	Power Supply
32	I	CL 1	Crystal Resonator
33	—	NC	NC
34	I	CL 2	Crystal Resonator
35	O	P 53	Strobe for Thermal Head
36	O	P 52	
37	O	P 51	
38	O	P 50	
39	I	VSS	Ground
40	O	P 43	Gate for Thermal Head Strobe
41	O	P 42	Acknowledge Signal to Main CPU
42	O	P 41	Read-Out Tone-Shading Mode Setting
43	O	P 40	Page Enable
44	O	P 22	Negative Response to Command

GATE-ARRAY (IC013: μPD65032)

Pin No.	I/O	Signal Name	Description
1	I	GND	Ground
2	I	VDD	+5V
3	I	TST 7	Not Use (Test Pin)
4	I	TST 8	
5	I	TST 9	
6	I	TSTA	
7	I/O	TD 7	
8	I/O	TD 6	
9	I/O	TD 5	
10	I/O	TD 4	
11	I/O	TD 3	
12	I/O	TD 2	
13	I/O	TD 1	
14	I/O	TD 0	
15	O	SD 4	Not Use
16	O	SD 3	
17	O	SD 2	
18	O	SD 1	
19	O	SD 0	
20	O	ADCK	Clock for A/D Convert
21	I	AD 5	Data Bus A/D Convert
22	I	AD 4	
23	I	AD 3	
24	I	AD 2	
25	I	DA 1	
26	I	AD 0	
27	O	SHEN	Read Enable Signal of Standard
28	I	GND	Ground
29	I	VDD	+5V
30	O	OVF	Overflow of Revised Signal
31	O	ABC	ABC Enable Signal
32	O	DTEN	Enable Signal of one line
33	O	ENBI	Enable Signal of one line
34	O	SH 2	Signal of Sample Hold
35	O	SH 1	Not Use
36	O	CL	Not Use
37	O	ϕ R	Reset Clock
38	O	ϕ TG	Start Signal of one line
39	O	ϕ2	Shift Clock of CCD
40	I	GND	Ground
41	O	ϕ1	Shift Clock of CCD
42	O	IPWE	Write Enable of RAM for Image
43	O	IPOE	Output Enable of RAM for Image
44	I/O	MCP	Simple Shaded Data
45	I/O	IP 6	Data Bus for Corresponding Image
46	I/O	IP 5	
47	I/O	IP 4	
48	I/O	IP 3	
49	I/O	IP 2	
50	I/O	IP 1	

Pin No.	I/O	Signal Name	Description
51	I/O	IP 0	Data Bus for Corresponding Image
52	I	VDD	+5V
53	I	GND	Ground
54	O	CPEW	Write Enable of RAM for Shading
55	O	CPOE	Output Enable of RAM for Shading
56	I/O	CP 5	Data Bus for Shading
57	I/O	CP 4	
58	I/O	CP 3	
59	I/O	CP 2	
60	I/O	CP 1	
61	I/O	CP 0	
62	O	AB 0	Address Bus for Shading
63	O	AB 1	
64	O	AB 2	
65	O	AB 3	
66	O	AB 4	
67	O	AB 5	
68	O	AB 6	
69	O	AB 7	
70	O	AB 8	
71	O	AB 9	
72	O	AB 10	
73	I	TST 1	Not Use (Test Pin)
74	I	TST 2	
75	I	TST 3	
76	I	TST 4	
77	I	XT 1	Crystal Resonator
78	O	XT 2	Crystal Resonator
79	I	VDD	+5V
80	I	GND	Ground
81	I	RST	System Reset
82	I	SS 1	Exchange of Sensor
83	I	SS 0	Exchange of Sensor
84	I	MSH	Shading Mode
85	I	EDG	Edge Emphasis
86	I	TCK 1	Not Use (Test Pin)
87	I	TST 5	
88	I	TST 6	
89	I	TDI 1	
90	I	MS 4	Exchange of Mode
91	I	MS 1	
92	I	MS 2	
93	I	MS 3	
94	I	SST	Signal of Shading Start
95	I	VIR	Image Data Request
96	O	VSEN	Enable Signal of Image
97	O	VSDA	Image Data
98	O	VSCK	Image Data Clock
99	I	ABS	Output Size
100	I	PGE	Page Enable Signal

GATE-ARRAY (IC008: μPD65024)

Pin No.	I/O	Signal Name	Description
1	I	A 0	Address Bus
2	I	A 1	
3	I	A 2	
4	I	A 3	
5	I	A 4	
6	I	A 5	
7	I	A 6	
8	I	A 7	
9	I	A 17	
10	I	A 18	
11	I	A 19	
12	I	RST	Power on Reset Input
13	O	RSO	Reset Output
14	—	WAT	Not Use
15	—	GND	Ground
16	I/O	DO 0	Data Bus
17	I/O	DO 1	
18	I/O	DO 2	
19	I/O	DO 3	
20	I/O	DO 4	
21	I/O	DO 5	
22	I/O	DO 6	
23	I/O	DO 7	
24	I	COL 0	
25	I	COL 1	
26	I	COL 2	Key Scan Column Address
27	I	COL 3	
28	I	COL 4	
29	I	COL 5	
30	—	COL 6	Not Use
31	I	S 27	DTMF Enable Signal
32	I	S 10	OGM Record Enable Signal
33	I	S 11	Acknowledge Signal of Sub CPU
34	I	S 12	Loop Current Detection Signal
35	I	S 13	Ring Detection Signal
36	O	BuZZ	Buzzer Signal Output
37	O	LCDS	Not Use
38	O	CS 1	Modem Select Signal
39	O	CS 2	Modem Select Signal
40	—	GND	Ground
41	—	VDD	Power Supply
42	O	MRD	"Memory Read Signal (ROM,RAM)"
43	O	MWR	Memory Write Signal RAM
44	—	GSOE	Not Use
45	O	RAM	RAM Chip Enable Signal
46	O	ROM	ROM Chip Enable Signal
47	—	GRSC	Not Use
48	I	VSE	Image Sensor Data Input
49	I	VSD	Image Sensor Enable Input
50	I	VSC	Image Sensor Clock Input

Pin No.	I/O	Signal Name	Description
51	I	DSE	Paper Sensor
52	I	CSE	Cover Sensor
53	I	DSE	Document Sensor
54	I	ADF	ADF Sensor
55	—	GRAM	Not Use
56	I	TEST	TEST Terminal
57	I	CPUC	Clock Input from MPU
58	I	ECK	Enable Clock Input from MPU
59	I	RTCS	Clock IC Control Signal
60	I/O	RTRW	Read/Write Control Signal
61	I	RALE	Address Latch Enable / EEPROM Data Input
62	I	RT 3	Sub Address Bus
63	I	RT 2	
64	I	RT 1	
65	I	TR 0	
66	—	GND	Ground
67	O	PH 0	Extended I/O Port
68	O	PH 1	
69	O	PH 2	
70	O	PH 3	
71	O	PH 4	
72	O	PH 5	
73	O	PH 6	
74	O	PH 7	
75	I	VDD	Power Supply
76	I	ROW 0	Key Scan Row Address
77	I	ROW 1	
78	I	ROW 2	
79	I	ROW 3	
80	I	ROW 4	
81	I	ROW 5	
82	I	IDEN	Service Parameter Select
83	I	TRBL	Cutter Trouble
84	I	SBAK	Affirmative Response Input
85	O	SINT	Interrupt Signal Output
86	O	SUBR	Reset Output to One-Chip MPU
87	O	I/03	Extended I/O Clock 3
88	O	I/01	Extended I/O Clock 1
89	O	I/02	Extended I/O Clock 2
90	—	GND	Ground
91	—	VDD	Power Supply
92	O	DRO	DMA Request Signal
93	O	DRI	DMA Request Signal
94	O	INT	Interrupt Request Signal
95	O	SIN	Serial Data Output to Thermal Head
96	O	CLK	Clock Output to Thermal Head
97	I	IOE	I/O Enable Signal Input
98	I	ME	Memory Enable Signal
99	I	RD	Memory Read Signal
100	I	WR	Memory Write Signal

CPU (IC301: μPD75104CW)

Pin No.	I/O	Signal Name	Description
1	—	P 13	Not Use
2	—	P 12	
3	—	P 11	
4	—	P 10	
5	—	PTH 03	
6	—	PTH 02	
7	—	PTH 01	
8	—	PTH 00	
9	—	TI 0	
10	—	TI 1	
11	—	P 23	
12	—	P 22	
13	—	P 21	
14	—	P 20	
15	I	SI	
16	I/O	SO	Serial Interface
17	I/O	SCK	Count Pulse
18	I	INT 4	
19	I/O	P 123	
20	I/O	P 122	Motor
21	I/O	P 121	Record/Play Signal
22	I/O	P 120	Erase Signal
23	—	P 133	Not Use
24	—	P 132	
25	—	P 131	
26	—	P 130	
27	—	P 143	
28	—	P 142	
29	—	P 141	
30	—	P 140	
31	—	NC	+5V
32	I	VDD	
33	—	P 33	
34	—	P 32	Not Use
35	—	P 31	
36	—	P 30	
37	—	P 43	
38	—	P 42	
39	—	P 41	
40	—	P 40	
41	—	P 53	
42	—	P 52	
43	—	P 51	
44	—	P 50	
45	I	RESET	Reset Signal
46	I	X 2	System Clock
47	I	X 1	System Clock
48	—	P 63	Not Use
49	—	P 62	
50	—	P 61	

FX6000AT.GERMAN

REF. NO.	DESCRIPTION.	PT. NO.
CABINET PARTS LIST		
A1	UPPER CABINET ASS'Y(A)	194484
A1-A	UPPER CABINET	
A1-B	DISPLAY WINDOW	194485
A1-C	BRAND BADGE	
A2	TAD CASSETTE DOOR ASS'Y	
A2-A	CASSETTE DOOR	194486
A2-B	CASSETTE WINDOW	194487
A3	REAR CABINET ASS'Y	194488
A3-A	REAR CABINET	
A3-B	SIDE GUIDE	
A4	BOTTOM CABINET ASS'Y	194305
A4-A	BOTTOM CABINET	
A4-B	FOOT	
A4-C	HOLDER TAPE	
A5	START BUTTON	194314
A6	STOP BUTTON	194315
A7	CONTROL BUTTON	194316
A8	ON HOOK BUTTON	194317
A9	CASSETTE BUTTON	194318
A10	LED LENS(A)	194411
A11	MEMORY SHEET	194412
A12	DIAL TEN KEYS	194313
A13-L	INNER COVER(L)	194413
A13-R	INNER COVER(R)	194414
A14	HANDSET HOLDER	194489
A14-B	MEMORY SHEET	194490
A15	BOTTOM PLATE	194415
A17	RATING LABEL	194491
A18	PAPER SETTING LABEL	194417
A19	DOCUMENT TRAY	194306
A20	PAPER SPACER	194418
A21	OPEN KNOB	194312
A22	APPROVED LABEL(B)	
A23	WARNING LABEL	194492
B1	UPPER CHASSIS	194420
B2	UPPER FEED GUIDE ASS'Y	
B2-A	UPPER FEED GUIDE	194421
B2-C	TENTION ROLLER(2)	194348
B2-D	TENTION ROLLER(1)	194347
B2-E	TENTION ROLLER SHAFT	194422
B2-F	ROLLER SPRING	194423
B3	SEPARATION BASE ASS'Y	194424
B3-A	SEPARATOR BASE	
B3-B	SEPARATOR(B)	
B3-C	SEPARATION SPRING	
B4	HINGE ARM(R)	194425
B5	HINGE ARM(L)	194426
b6	MOUNTING BRACKET ASS'Y	194481
B7	SIDE BRACKET ASS'Y	194427

B7-A	SIDE BRACKET	
B7-B	HINGE SHAFT(R)	
B8	LOCK LEVER ASS'Y	194328
B8-A	LOCK LEVER SHAFT	
B8-B	LOCK LEVER(L)	
B8-C	LOCK LEVER(R)	
B8-D	LOCK LEVER SPRING(B)	
B9-A	SEPARATION ROLLER ASS'Y	194351
B9-B	ONEWAY CLUTCH(B)	194428
B9-C	ADF ROLLER PINION	
B10	DRIVING ROLLER ASS'Y	194350
B10-A	DRIVING ROLLER	
B10-B	READING GEAR	
B11	EXIT ROLLER ASS'Y	194349
B11-A	EXIT ROLLER	
B11-B	READING	
B12	PLATEN ROLLER(B) ASS'Y	194346
B12-A	PLATEN ROLLER(B)	
B12-B	BEARING	
B12-C	OILLESS BEARING	
B12-D	PLATEN ROLLER PINION	
B13	CASSETTE DOOR HOLDER	194429
B14	MICRO CASSETTE DECK	194327
B15	PAPER GUIDE	194430
B16	LINK SPRING	194431
B17	FEED EXIT GUIDE	194432
B18	HEAD BRACKET(L)	
B19	HEAD BRACKET(R)	
B20	THERMAL HEAD SETTING PLATE	194433
B21	PINION(S)2	
B24	HINGE SPRING(L)	194434
B25	EXIT PAPER GUIDE	194435
B26	HINGE SPRING(R)	194436
B29	PAPER SUPPORT	
B27	ROM LABEL	
B30	FEED WAY GUIDE	194437
B31	GLASS	194331
B32	POWER SUPPLY CHASSIS	
B33	LENS HOLDER	
B34	LED BRACKET	
B35	ROLLER BEARING	
B36	SERIAL LABEL(4)	
B39	MIRROR(A)	194320
B40	MIRROR(B)	194321
B41	MIRROR(C)	194322
B42	MIRROR CLIP	194438
B43	LENS	
B38	CCD UNIT ASS'Y	194330
B44	HEAD SPRING	
B45	STOPPER BRACKET	
B46-1	GROUND SHEET	
B47	DECK PROTECTION PLATE	
B48	POWER SHIELD PLATE	
B50	STOPPER DIAMETER 3.2X7X0.5	

B51	SECONDRY PINION(A)	194332
B52	SECONDRY PINION(B)	194333
B53	IDLE PINION	194334
B54	IDLE PINION(B)	194335
B55	BEARING	194439
B56	SENSOR KNOB	194440
B57	INSULATING SHEET(M)	
B58	HINGE SPRING(R)2	
B60	SPEAKER CUSHION	
AC1	AC CORD	194409
CU1	AUTO CUTTER UNIT	194329
HD1	THERMAL HEAD	194326
MP1	MOTOR PRINTER	194336
MR1	MOTOR(R)READER-SCANNER MOTOR	194337
PS1	SEESAW SWITCH	194338
PU1	POWER SUPPLY	194494

DIODES

D003-005,201	D RLS 73	194441
D101-106	D RLS71	194442
401-405,406		
DZ001	DZ RLZ5.1B	1422122
DZ101,401,402	DZ RLZ24B	194443
DZ103,104	DZ RLZ39B	241234
D001	SHOTTKY RB451F T107	194391
DB401	BRIDGE S1ZB40	194444
D501-505	LED SLR-34MG80F246	194445
D506	LED SLR-34VR80F246	194446
D511-546	D CHIP DAN202K-T146	194447

IC'S

IC007	CLOCK IC TC8250P	193601
IC103,104	TRANSISTOR ARRAY TD62308BP	193627
IC010	MODEM IC R69MFX	193047
IC003	IC M27C1001-15XF1 5VA0078307	194384
IC102,601	IC (COMPARATER) BA10393F(T1)	194273
IC031,401,402	IC (OP AMP) BA15218F	194281
IC016	IC (A/D CON) CXD1172AM-T3	194288
IC013	IC (G/A) UPD65032GF-061-3BA	194287
IC002	ONE CHIP MICON UPD7533GB-746-3B4	194282
IC009	IC (EPROM) XLS93C46J	194283
IC029	IC (POWER AMP) NJM386M	194285
IC030	IC (DTMF RECEIVER) TC35310F(TP1)	194291
IC017	IC (CMOS LOGIC) TC7S04F(TE85L)	194286
IC018	IC (CMOS LOGIC) TC7S08F(TE85R)	194289
IC020,021	IC (CMOS LOGIC) TC74HC273AF	194290
026		
IC014	IC (CMOS-SRAM) LC3517BML-15	194275
IC008	GATE ARRAY UPD65024GF 14DV785	194448
IC011	IC (VOICE REC & PLAY) T6668	194278
IC019	IC (CMOS LOGIC) TC74HC04AF	193604
IC005	IC (RESET) MB3771PF	193600
IC001	IC (8-BIT CPU) Z80180 06VSC	194280
IC101	IC LOGIC SN7406N	175561

IC024,025	IC (OP-AMP) NJM072M	193625
IC022,023 027	IC NJU4053BM-T1	194277
IC012	IC (D-RAM) GAAA2801-J-10T	194284
IC004	IC (CMOS SRAM) KM62256ALG-10L	194388
IC304	IC (GAVANA0 BA6220	194270
IC301	IC (CPU) UPD75104CW-259	191271
IC303	IC (OP AMP) BA10358	254140
IC302	IC TA31081P(EQUALIZER)	194272
IC201	IC (CCD) UPD3733D	194484
IC204	IC (OP AMP) NJM072M	193625
	TRANSISTORS	
Q005	CHIP TR 2SB1132(Q)	153750
QR102,104	TR FMC4	194389
QR101	TR FMG7	194370
Q102	CHIP TR 2SB1188(R)	153751
Q107	TR 2SD1664(R)	270416
Q103-106	CHIP TR 2SD1766(R)	153748
QR103	CHIP TR DTC144KU	152042
Q108	CHIP TR 2SA1037K-T146	193631
Q003	TR 2SC2412KLN	193630
Q001,004,006	CHIP TR 2SC2412K(R)-TI46	193630
Q101	TR 2SD1834T101	194392
Q301,303	TR 2SA1561(R)	194395
Q302	TR 2SA1560(R)	193629
Q304	TR 2SD1919(R)	194396
Q401	TR FMW4	194293
Q402	TR 2SA1727 F5(Q)TL	194399
Q404	TR 2SA1036K(R)	194294
Q501-506	CHIP TR 2SA1037K-T146	253105
Q601	TR FMW2	194407
Q201-203	CHIP TR 2SC2412K(R)-T146	193630
	SWITCHES	
SW001	DIP SWITCH KSD02	194449
SW002	SLIDE SWITCH SLD-13-466J	194450
SW1	PUSH SWITCH MSS-10A	194451
SW603,602	SWITCH SS-6-6	194452
S501-512	TACT SWITCH SKPDAA	194482
S513-536	PUSH SWITCH SKHVBE020B KHV-902	194453
	CRYSTALS	
X003	CRYS RES DT-38 32.768 KHZ	194377
X004	CRYS RES HC-49U 24.00014 MHZ	194378
X007	CER RES CSA3.58MG300B	194379
X005	CER RES CSB655P	194380
X006	CER RES CSA4.00MG	194381
X002	CER RES CSB500J	194454
X301	CER RES CSA4.19MGU	194455
	COILS & INDUCTORS	
L002	CHIP L 100UH(LEM3225T)	194456

L003	CHIP INDUCTOR BLM21A05PT	194457
L403	AXIAL LEAD INDUCTOR LAL04KB102K	194458
	MISCELLANOUS	
	MICRO CASSETTTE TAPE MC-30	193811
	ONE-PIECE TELEPHONE	194368
	TEL CORD	194369
	OWNERS MANUAL	194370
	THERMAL PAPER (1")	193192
LCD1	LCD UNIT DMC16117A	194345
SP1	SPEAKER 0.2W 32 OHM	194319
MIC1	MIC WM-034CX	194464
	MIC HOLDER	
RP101	POSISTOR PTH61G30BD2R2N	194465
	MICRO CASSETTE DECK ASSB'Y	194327
CNM003,CNT301	FFC CONNECTOR 13P IL-404-13S-TW	194466
CNM008,CNC201	FFC CONNECTOR 15P IL-404-15S-TW	194467
CNM002,CN501	FFC CONNECTOR 21P IL-404-21S-TW	194468
ML101	FILTER TLF9UBH302	194372
L101	FILTER CH3ROB	194373
RL101	RELAY OLR-C-100.2S 183	194375
RL401	RELAY OJE-SS-124DM N002	194301
RL402	RELAY G6GN-2D-FN-DC24V M005	194299
RL403	RELAY OLR-C-124FS 156	194300
RL404	RELAY VB24MBU-VD2 DSB2-M-2D 166	194398
CNM101,102	MOD JACK 4/6	
PC101,401	PHOTO COUPLER TLP521-1	194296
	PHOTO COUPLER PS2501-1(LA OR KA)	194383
SA101,104	GAS TUBE ARRESTOR SRYJ800L	194469
T401	AUDIO TRANS 89-268	194470
ZR402	SURGE ABSORBER ENC151D-14A(TAPING)	194471
ZR401	SURGE ABSORBER ENC361D-14A(TAPING)	194472
BZ401	BUZZER CB-12AP9	194473
CN402	ANGLE SOCKET CONNECTOR 14P 14P-FJ	194474
PR1	REFLECTIVE PHOTOSENSOR RPR359F	194475
CNP601	ANGLE PIN HEADER IL-S 4P	194476
	LED UNIT CL-140	194344
CO15	GOLD CAPACITOR 1F/5.5V EECS5R5H105	194477
	CARTON	194493
	SET POLY PACK	194495
	VARIABLE RESISTORS	
VR201,202	SF KVSF637AO-8502	194478
VR1	P.O.T 5K OHM B	194479
VR301	SF KVSF637AO-B102	194480

ELECTRICAL PARTS LIST

DESCRIPTION	REF. NO.	PT. NO.

CHIP RESISTORS

ALL RESISTORS LISTED BELOW ARE 1/10W UNLESS OTHERWISE STATED.

0 OHM	R050,151-153,408,410,424,J1-3,001	
	002,004,006,008,013,014,016,022	

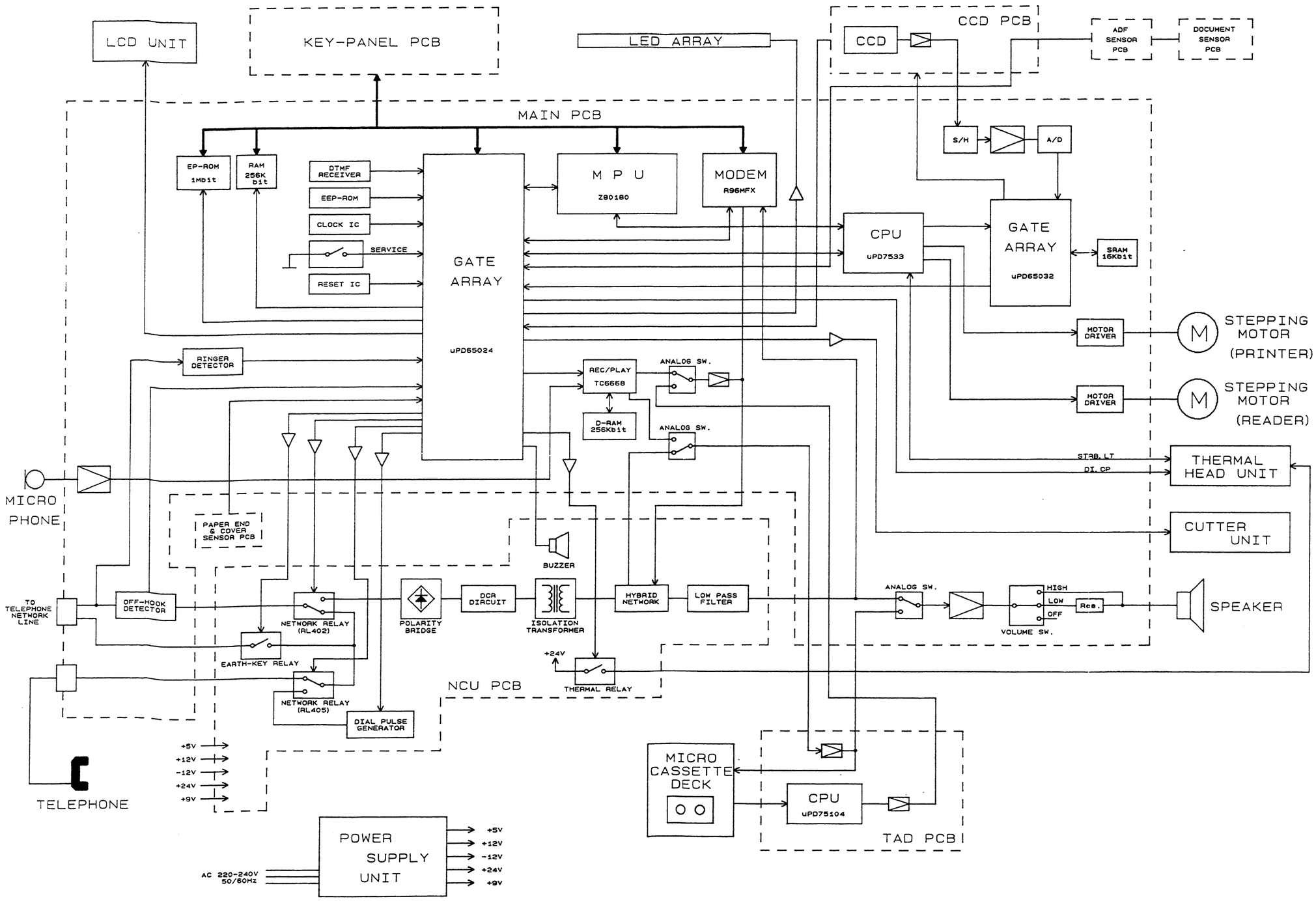
	023,025,028,032,036,106,111,112 115,117,123,201-205,403,405,407 408,413.414,416,418,425,440,441 445,007,008,010,065,066,162,168 174,180,420,425,442,444,001
1 OHM	R094
6.2 OHM	R084,085
10 OHM	R089,314
30 OHM	R603
33 OHM	R080,205,222,214,407
56 OHM	R155
68 OHM	R210,211,317
100 OHM	R012,068,179,186,446
120 OHM	R060,111,113
150 OHM	R329
200 OHM	R328
270 OHM	R501-505
330 OHM	R304,602
390 OHM	R411
470 OHM	R016,325,333,460,506
510 OHM	R054
560 OHM	R102,122
680 OHM	R067,081
1K OHM	R011,039,040,079,119,157,171,178 206,208,216-218,222,438
1.2K OHM	R213,215
1.10K OHM	R405
2.2K OHM	R056,075,109,123,128,601,612
2.7K OHM	R043
3K OHM	R445
3.3K OHM	R046,161,312,604
4.7K OHM	R017-037058,077,082,083,091,093 112,114,124,303,308,327,340,614
4.70K OHM	R074
5.1K OHM	R611
5.6K OHM	R001,055,107,151,334,335
6.2K OHM	R014
8.2K OHM	R047,116
8.20K OHM	R436
10.0K OHM	R044,053,070,095,110,118,177,306 331,404,413,414,416-418,440,606 607,610
11K OHM	R415
15K OHM	R057,064,076,159,181,309,507-512
18K OHM	R009,092,321
20K OHM	R412
22K OHM	R002-006,041,04,160 175,176,307 316,320,324,439,609
27K OHM	R301,302,342
33K OHM	R098,163
36.5K OHM	R045
39K OHM	R115
46.4K OHM	R423
47.0K OHM	R073,105,117,129,220,221,330,336

	435,613
47.5K OHM	R406
51K OHM	R015
56K OHM	R121,441
68K OHM	R078,319
86.6K OHM	R426,437
100K OHM	R090,096,101,106,120,310,313,326 403,443,605,608
120K OHM	R305
130K OHM	R013
150K OHM	R099,167,207
270K OHM	R315,323,332
330K OHM	R100
470K OHM	R322
820K OHM	R059
1M OHM	R069,311
2.7M OHM	R038
	CHIP RESISTOR 1/2W
27 OHM	R108
680 OHM	R209
	CHIP RESISTOR 1/4W
0 OHM	J103,109,119
1 OHM	R121
470 OHM	R172
560 OHM	R086
	CHIP RESISTOR 1W
22K OHM	R103
	CARBON RESISTORS
100 OHM/1/2W	R462
1K OHM/1/5W	FL001,002
	CHIP CERAMIC CAPACITORS
12PF/50V	C012
15PF/50V	C013,034
22PF/50V	C211
30PF/50V	C303,304
33PF/50V	C090,091
47PF/50V	C006
68PF/50V	C155
100PF/50V	C054,055,074,075
150PF/50V	C165
180PF/50V	C025,026
220PF/50V	C030,031,088
470PF/50V	C171
0.001UF/50V	C040,047,087,093,308,318,
0.01UF/50V	C059,060,089,158,169,312,321,326 415
0.1UF/50V	C420-423
0.1UF/25V	C001-004,005,007,009,014,016-021 027,028,033,037,039,041,053,056 062,064,065-067,069-073,076-082 086,094,095,096,098,099,103,111 156,163,201,203,209,210,301,310

	402,414,417,419,450,501-507
0.0022UF/50V	C029,068
0.022UF/50V	C010,046,168
0.027UF/50V	C322
0.33UF/16V	C032
0.047UF/25V	C325
0.17UF/50V	C104,105
	CERAMIC CAPACITORS
100PF/50V	C035
	METALIZED FILM CAPACITORS
0.33UF/250V	C102
	CHIP ELECTROLYTIC CAPACITORS
1UF/50V	C011,038
10UF/16V	C160
10UF/50V	C063
33UF/16V	C101
47UF/16V	C045,061,084,107A,107B,109,110,161
100UF/6.3V	C036,085,108,159
	ELECTROLYTIC CAPACITORS
0.1UF/50V	C314
1UF/50V	C305,309,311,313
1.5UF/25V	C404
10UF/16V	C205,208,307,319,324
22UF/6.3V	C315
33UF/25V	C403
100UF/10V	C306,316
100UF/16V	C202,323
100UF/25V	C428,431
100UF/35V	C425
	ELCTROLYTIC DOUBLE LAYER CAPACITOR
1F/5.5V	
	MISCELLANEOUS
	WIRE ASS'Y
	CONNECTOR ASS'Y 10P(LCD)
	CONNECTOR ASS'Y 8P(DECK)
	CONNECTOR ASS'Y 4P(DECK)
	CONNECTOR ASS'Y 2P(SP)
	CONNECTOR ASS'Y 2P(MIC)
	CONNECTOR ASS'Y 2P(POWER)
	CONNECTOR ASS'Y 15P(HEAD)
	CONNECTOR ASS'Y 4P(P/E SENSOR)
CN404	CONNECTOR ASS'Y 13P(NCU)
CN401	CONNECTOR ASS'Y 5P(NCU)
CN403	CONNECTOR ASS'Y 14P(NCU)
CNC203	CONNECTOR BASE EH 2P
CNM107	CONNECTOR BASE PH 5P
CNM108	CONNECTOR BASE PH 6P
CNM112	CONNECTOR BASE PH 14P
CNM011	CONNECTOR BASE PH 15P

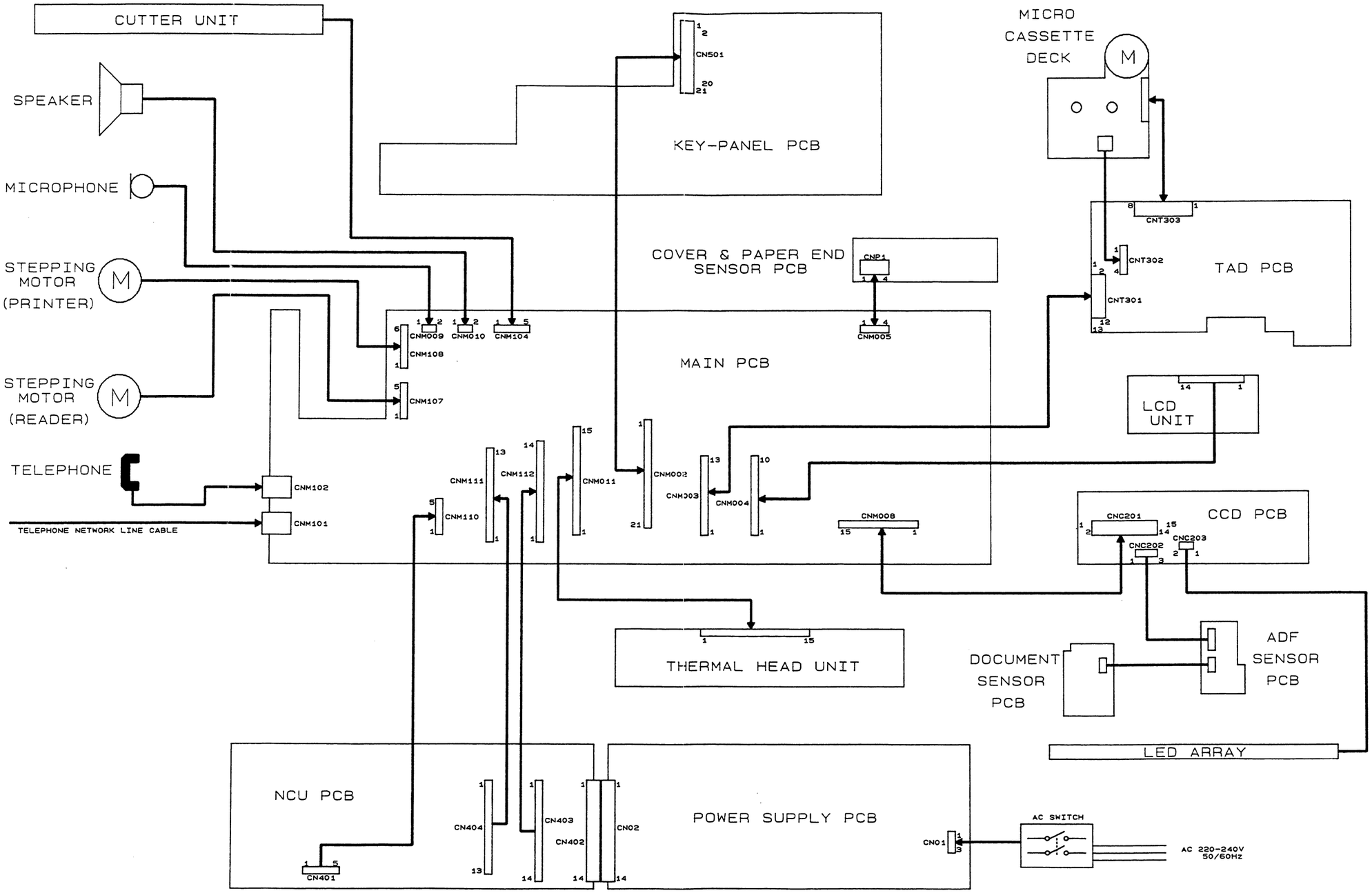
CNT303	CONNECTOR BASE IL-S 8P
CNM009,010	STRAIGHT PIN HEADER IL-S 2P
CNM005,CNT302	STRAIGHT PIN HE@DER IL-S 4P
CNM104,110	STRAIGHT PIN HEADER IL-S 5P
CNM004,106	STRAIGHT PIN HEADER IL-S-10P
CNM111	STRAIGHT PIN HEADER IL-S 13P
	LEAD CLAMPER
FFC	WIRE 21P
	FFC WIRE 13P
	WIRE 2P
	WIRE 3P(5P)
	FFC WIRE 15P

BLOCK DIAGRAM



Q5020BLK

WIRING DIAGRAM

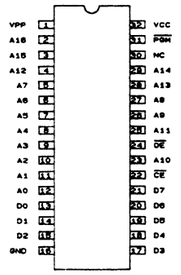


Q5020WI

PIN ASSIGNMENT

1. IC

uPD27C1001AD-12
M27C1001-15XF1



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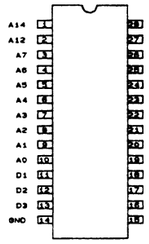

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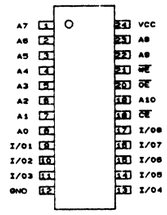
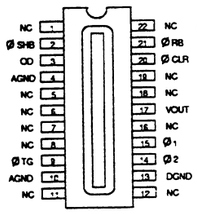


uPD3733



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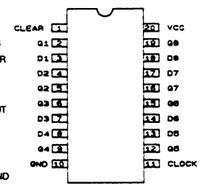

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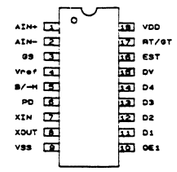
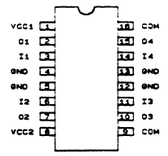


TD62308BP



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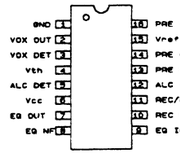
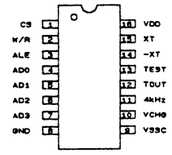


TC8250P



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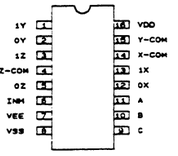
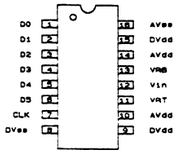
NJU4053BM



CXD1172AM



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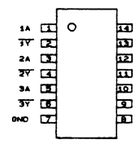

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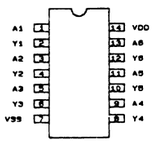

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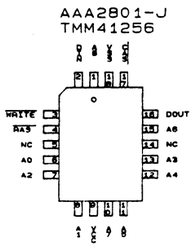

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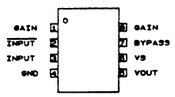

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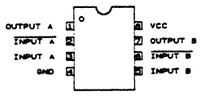

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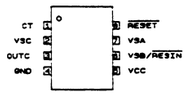

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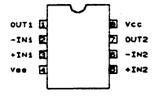

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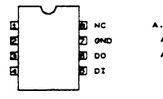

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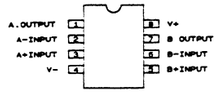

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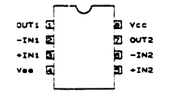
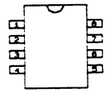


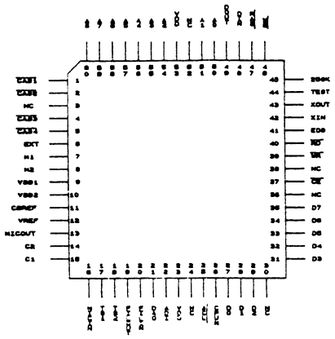
BA6220



TC7S04F

TC7S08F

TC6668



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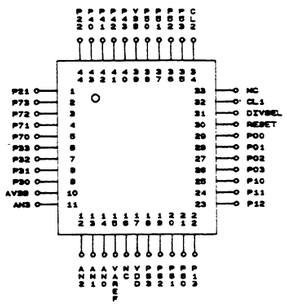
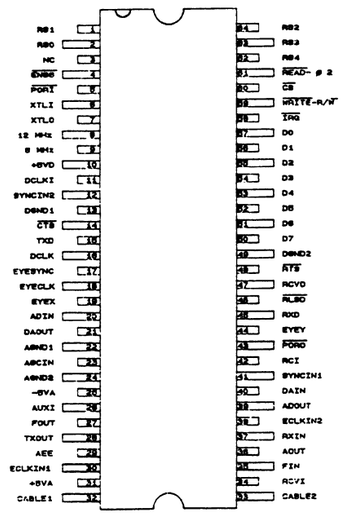


R96MFX



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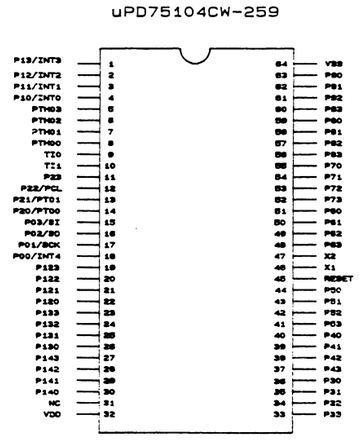
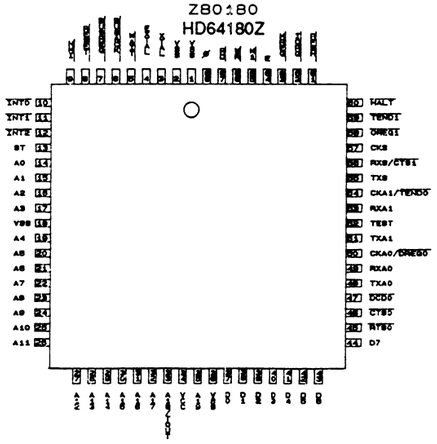


Z80180
HD64180Z



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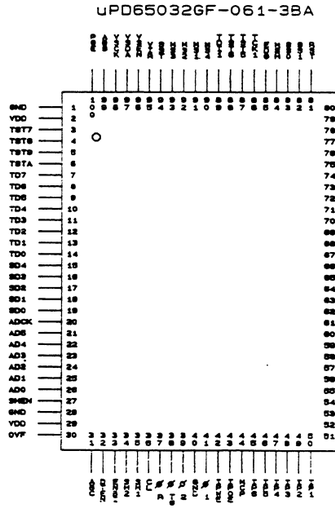

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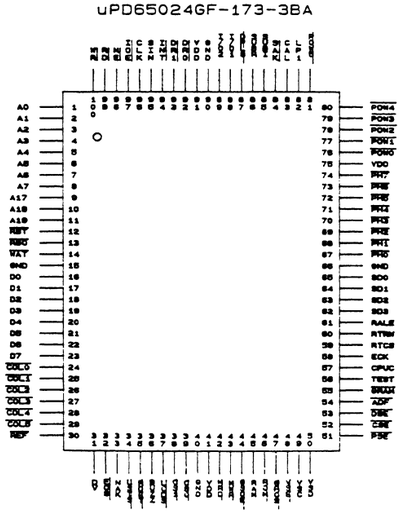
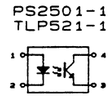


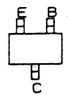
2. PHOTO COUPLER

PS2501-1
TLP521-1

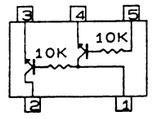


3. TRANSISTOR

2SA2412KLN
2SA1037K
2SC2412K
2SA1036K
DTC144EK



FMG7



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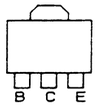
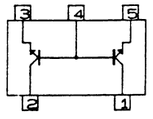
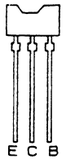
2SD1766R
2SB1132Q
2SB1188R
2SD1664R
2SA1727Q



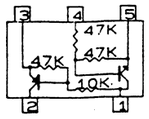
FMW2
FMW4



2SA1560R
2SA1561R
2SD1919R

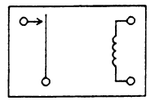


FMC4

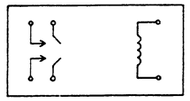


4. RELAY

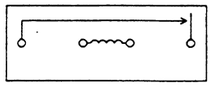
OJE-SS-124DM



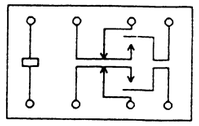
VB24-TBU-VD2



OLR-C-124FS
OLR-C-100.2S

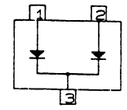


G6GN-2D-FN

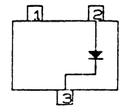


5. DIODES

DAN202K



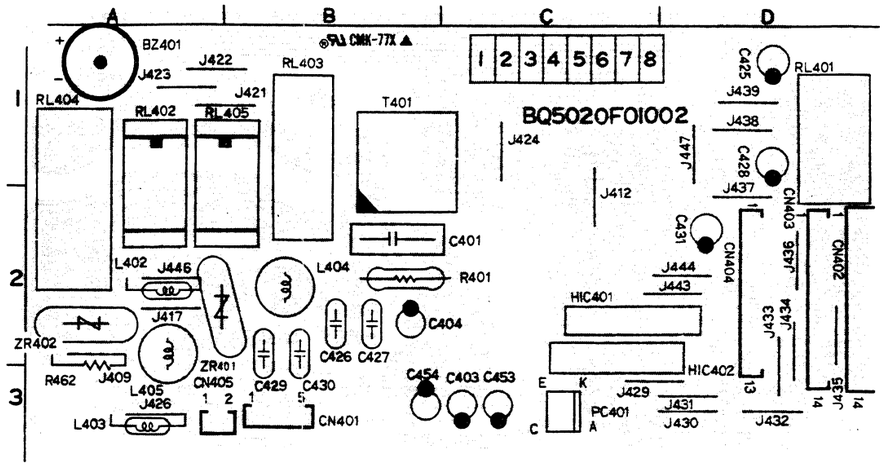
RB451F



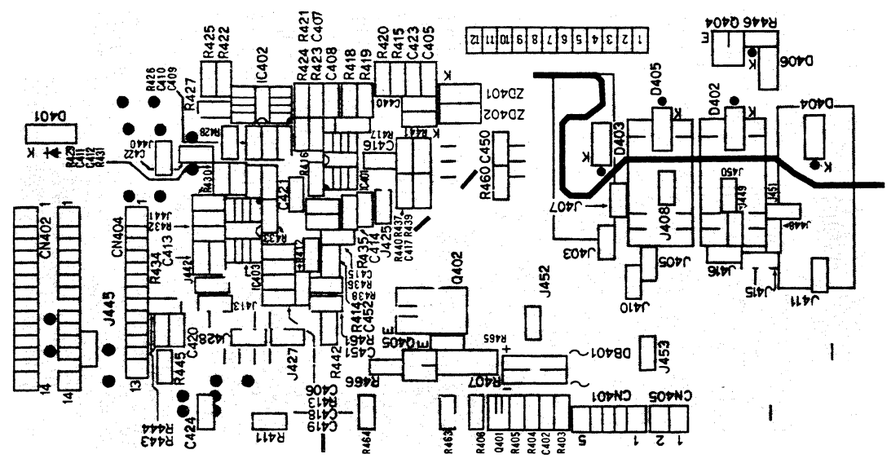
Q5020PIN

NCU PCB

Top View

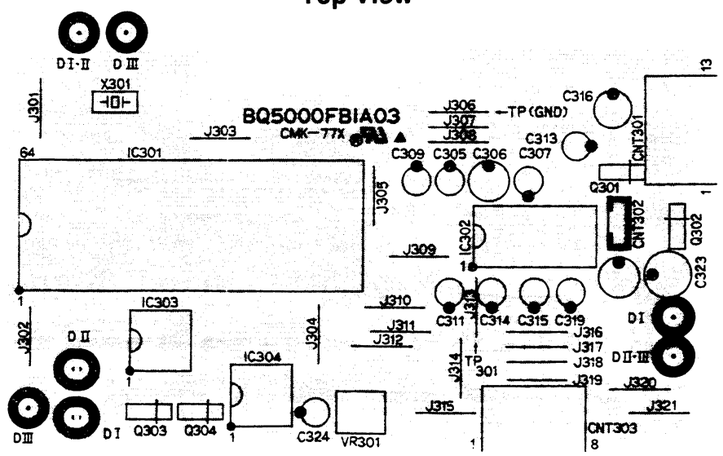


Bottom View

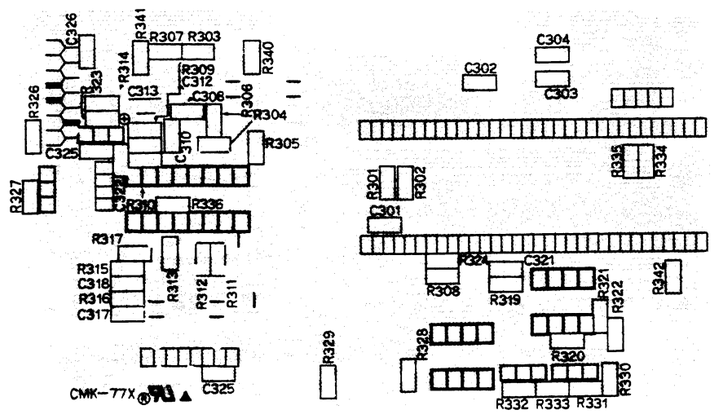


TAD PCB

Top View



Bottom View

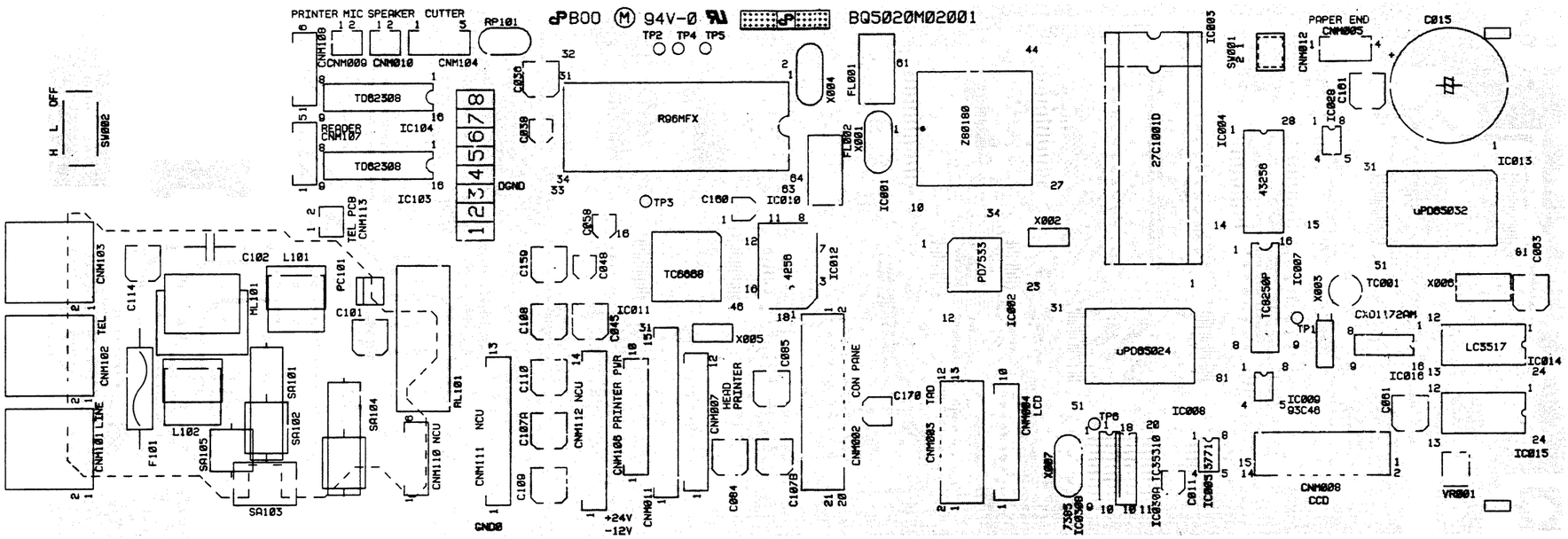


Q5020DRW

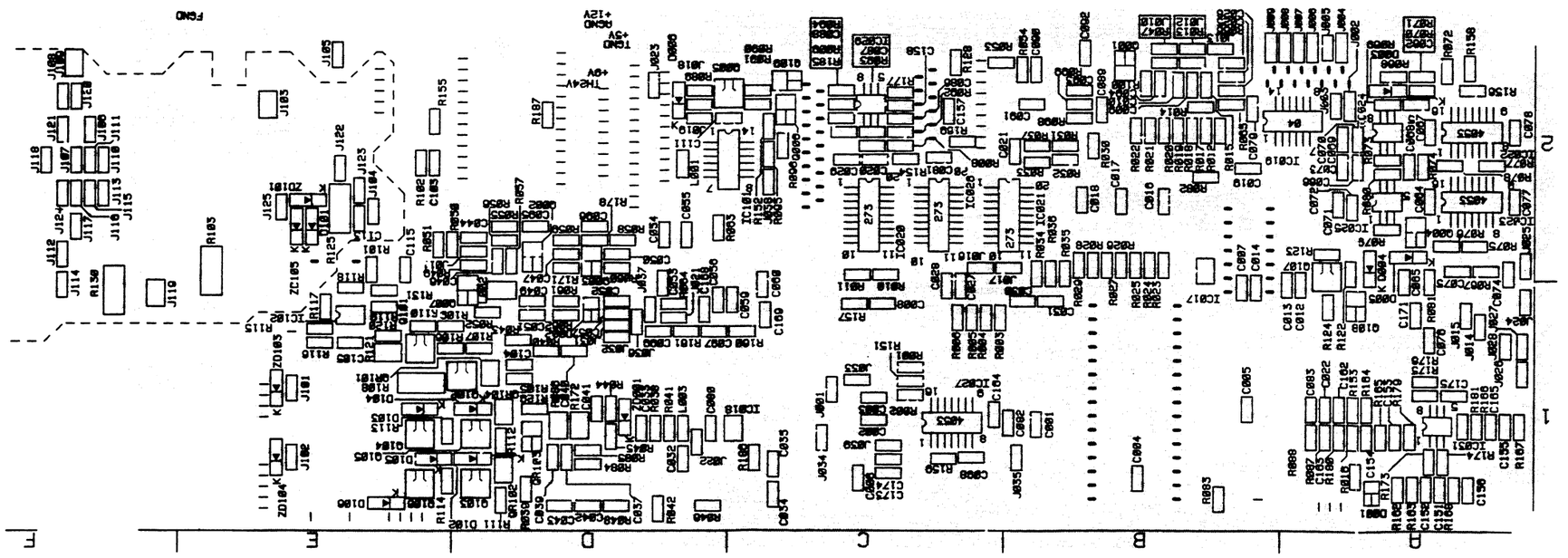
PARTS LAYOUT ON PCB

MAIN PCB

Top View



Bottom View

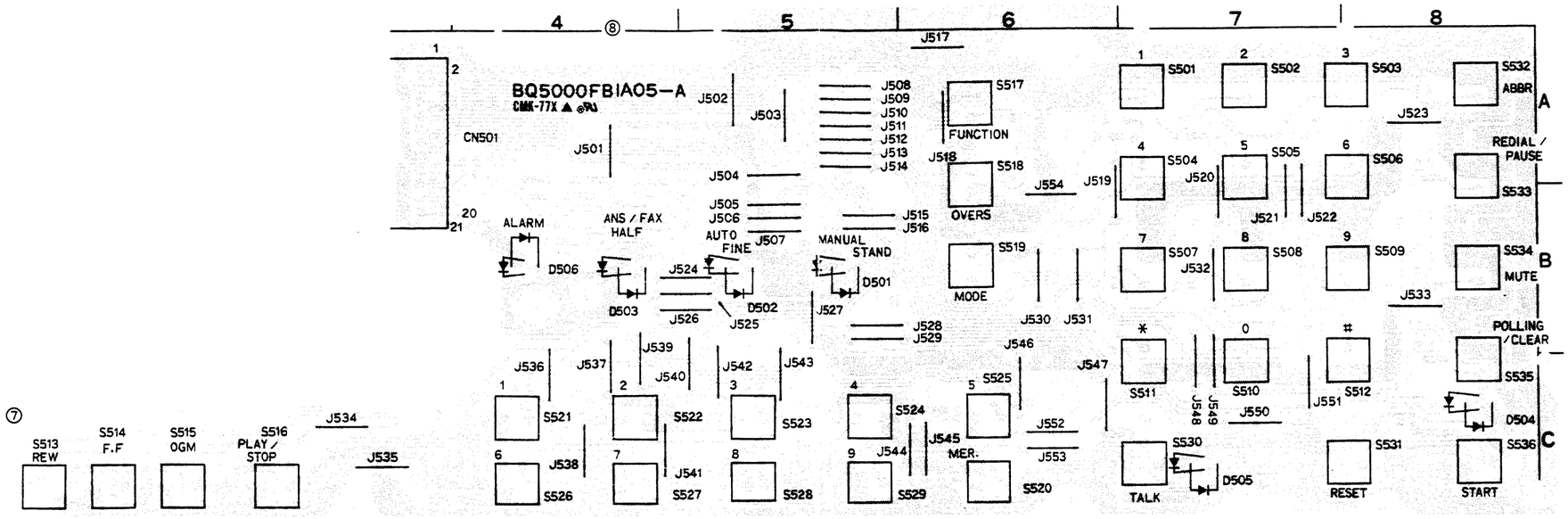


Q5020DRW

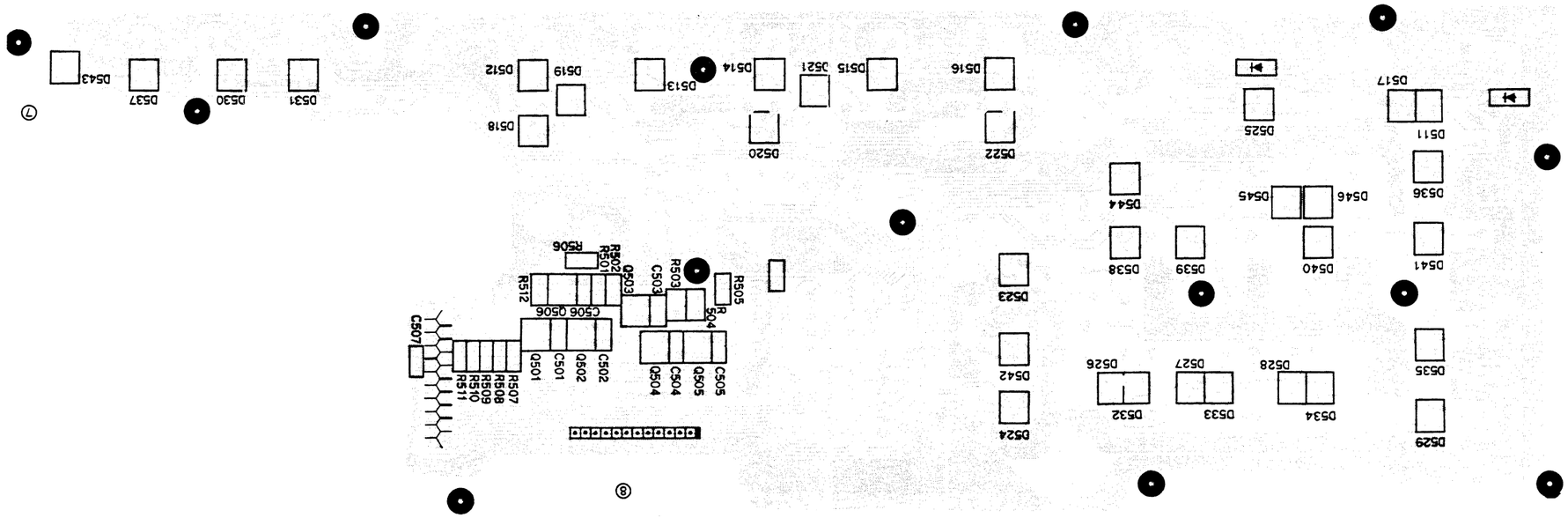
COMPONENTS PCB

KEY PANEL PCB SECTION

Top View



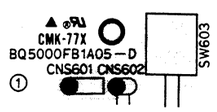
Bottom View



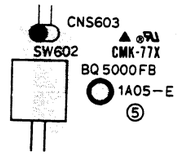
Q5000DRW

SENSOR PCB SECTION

Top View



(ADF Sensor)

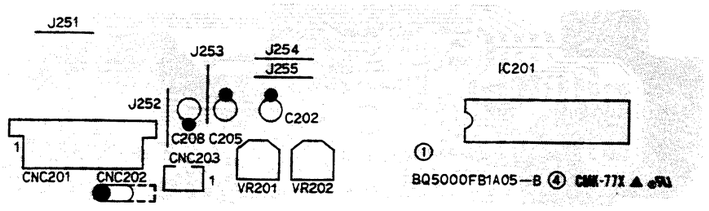


(Document Sensor)

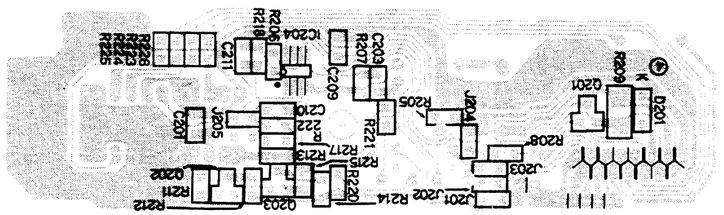
Bottom View

CCD PCB SECTION

Top View

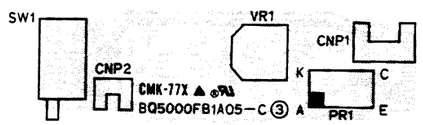


Bottom View

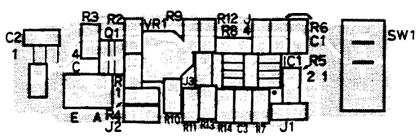


PAPER END SENSOR PCB SECTION

Top View



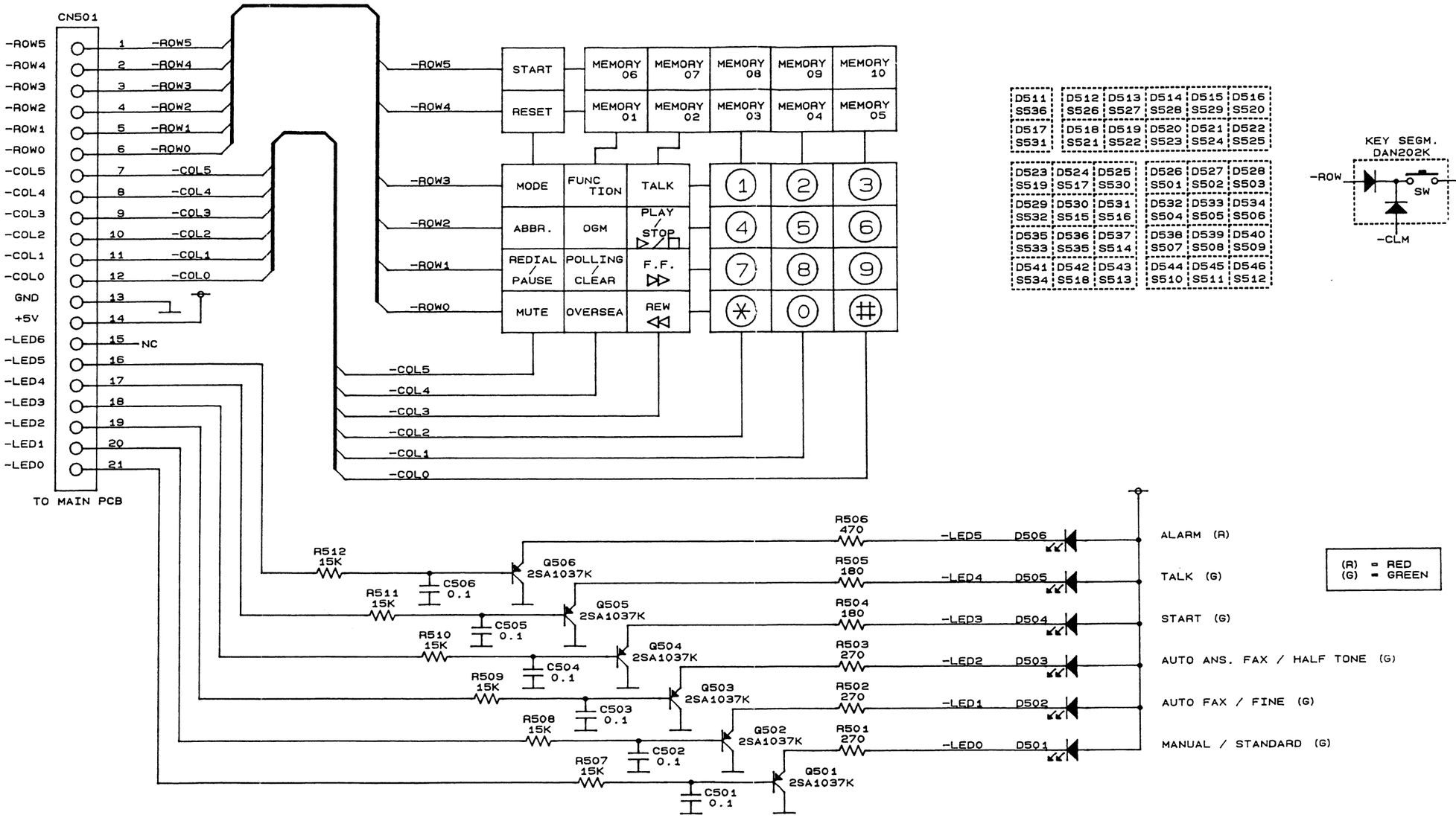
Bottom View



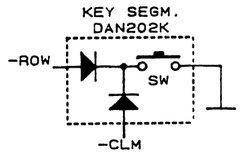
NOTE: Ref. NO. 600 series

Paper End Sensor PCB is as shown above in the unit.
But it is listed as Ref. No. 600 series in the parts list and schematic diagram except the Ref. No. of jumper.

KEY PANEL PCB



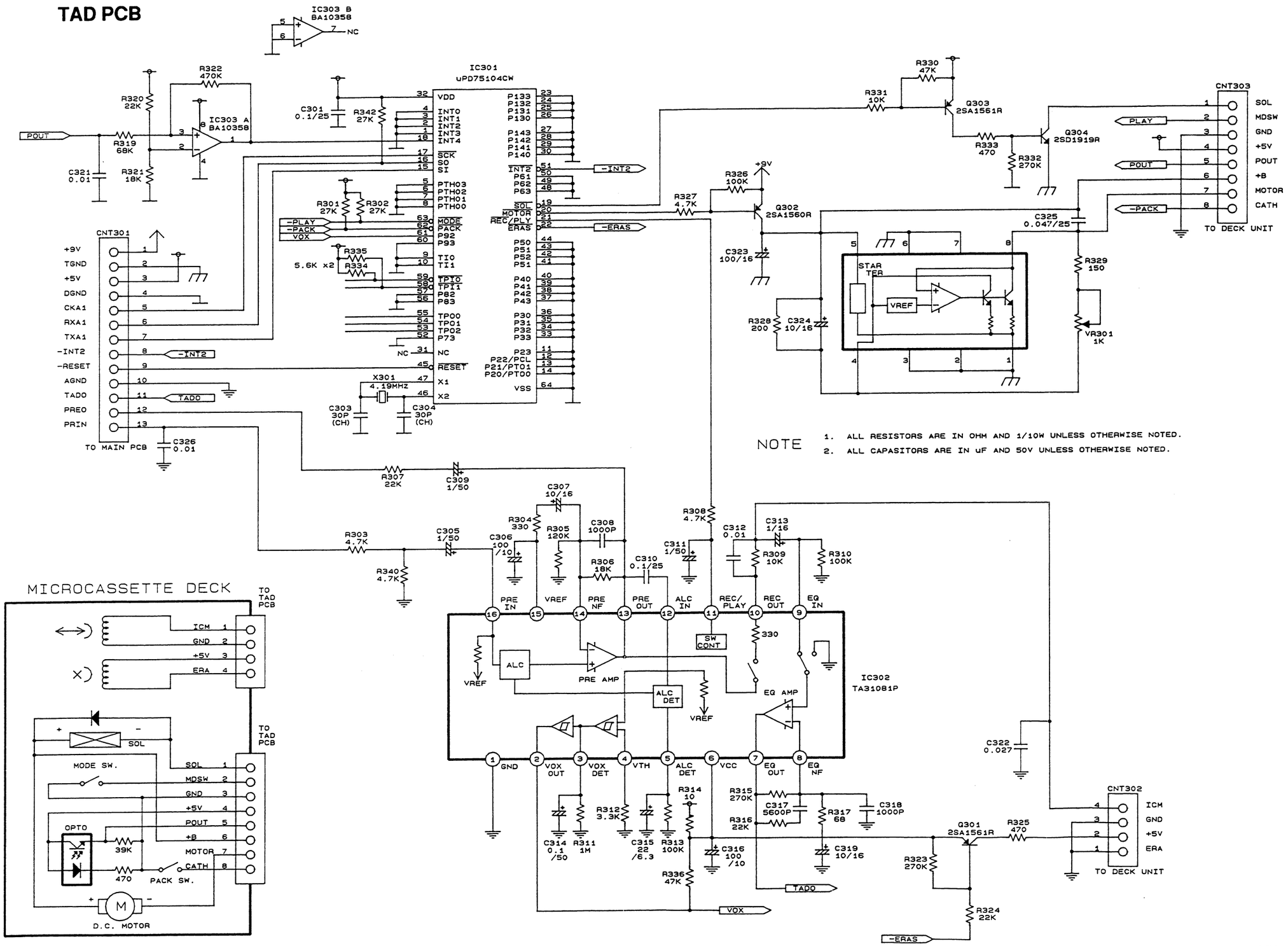
D511 S536	D512 S526	D513 S527	D514 S528	D515 S529	D516 S520	D523 S519	D524 S517	D525 S530	D526 S501	D527 S502	D528 S503
D517 S531	D518 S521	D519 S522	D520 S523	D521 S524	D522 S525	D529 S532	D530 S515	D531 S516	D532 S504	D533 S505	D534 S506
						D535 S533	D536 S535	D537 S514	D538 S507	D539 S508	D540 S509
						D541 S534	D542 S518	D543 S513	D544 S510	D545 S511	D546 S512



NOTE
1. ALL RESISTORS ARE IN OHM AND 1/10W UNLESS OTHERWISE NOTED.
2. ALL CAPASITORS ARE IN uF AND 25V UNLESS OTHERWISE NOTED.

Q5020DRW

TAD PCB

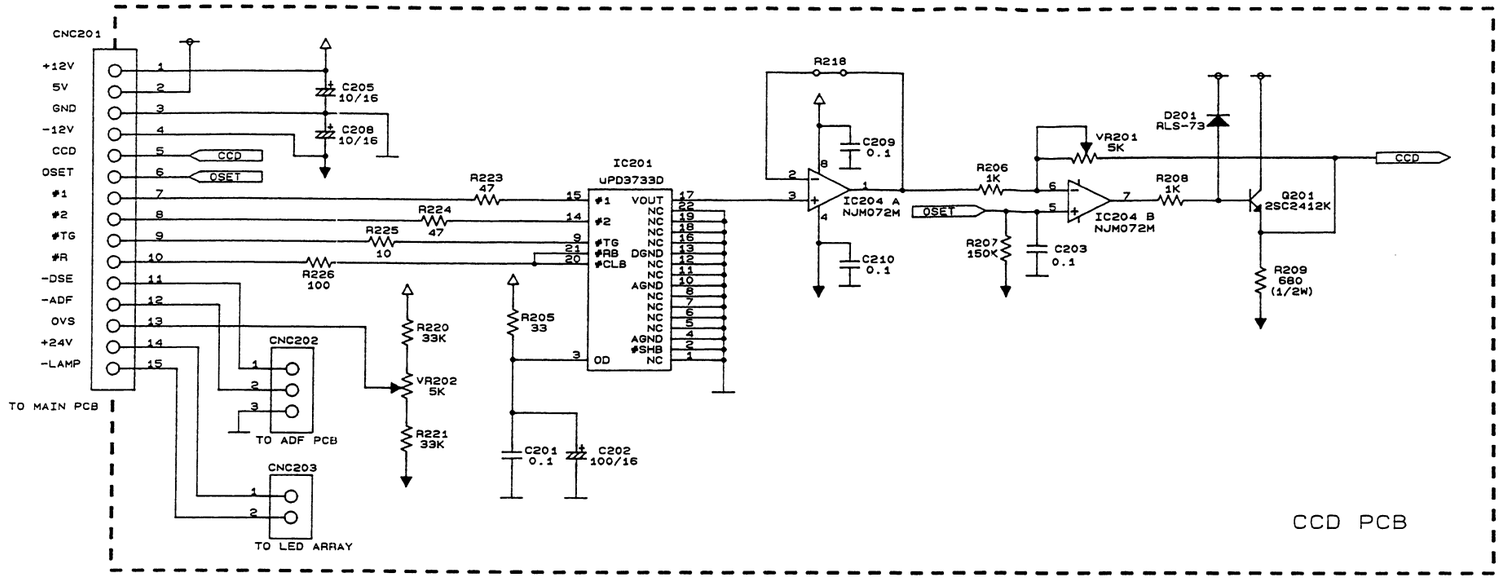


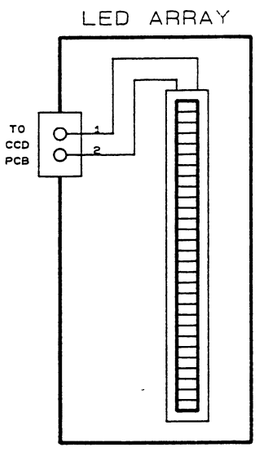
NOTE

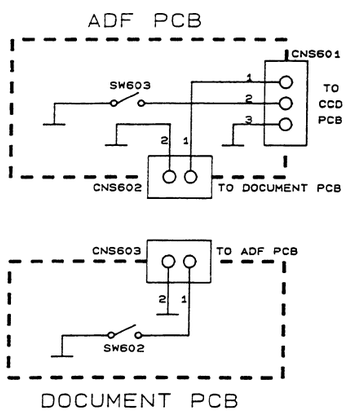
1. ALL RESISTORS ARE IN OHM AND 1/10W UNLESS OTHERWISE NOTED.
2. ALL CAPASITORS ARE IN uF AND 50V UNLESS OTHERWISE NOTED.

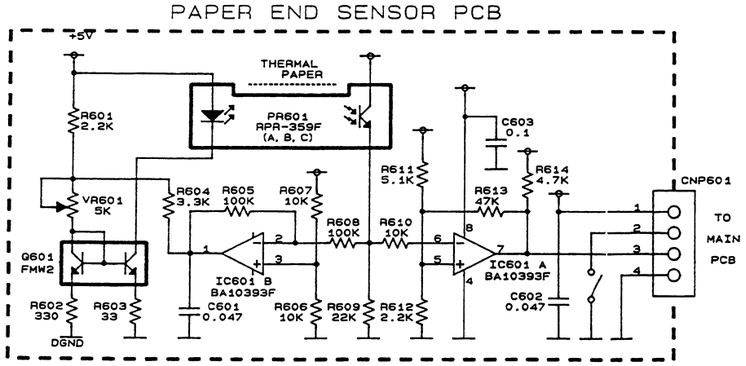
Q5020DRW

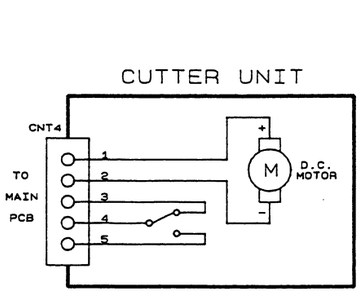
PERIPHERAL

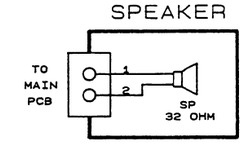


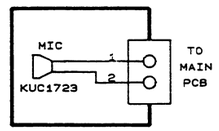


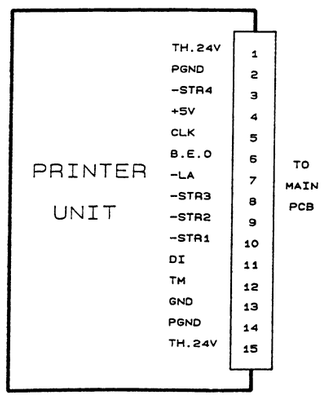


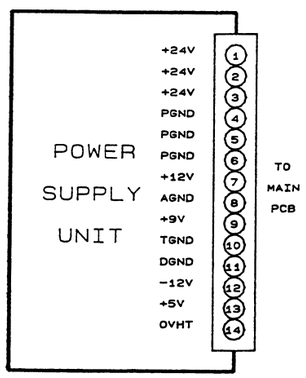


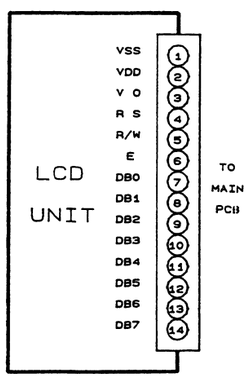


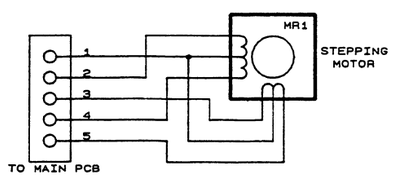


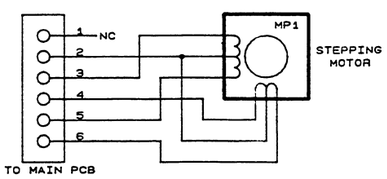








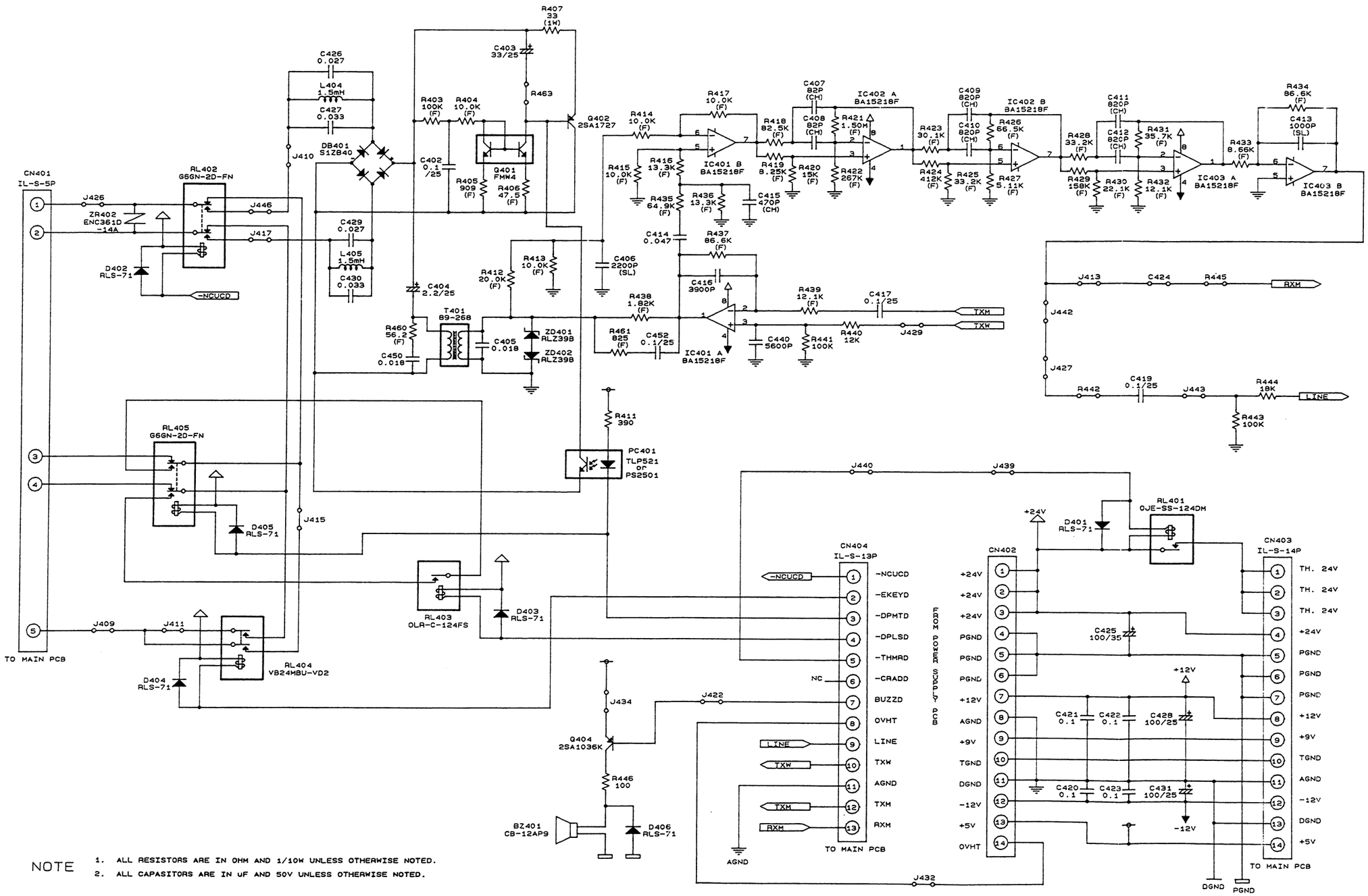




NOTE
1. ALL RESISTORS ARE IN OHM AND 1/10W UNLESS OTHERWISE NOTED.
2. ALL CAPASITORS ARE IN uF AND 50V UNLESS OTHERWISE NOTED.

Q5020DRW

NCU PCB

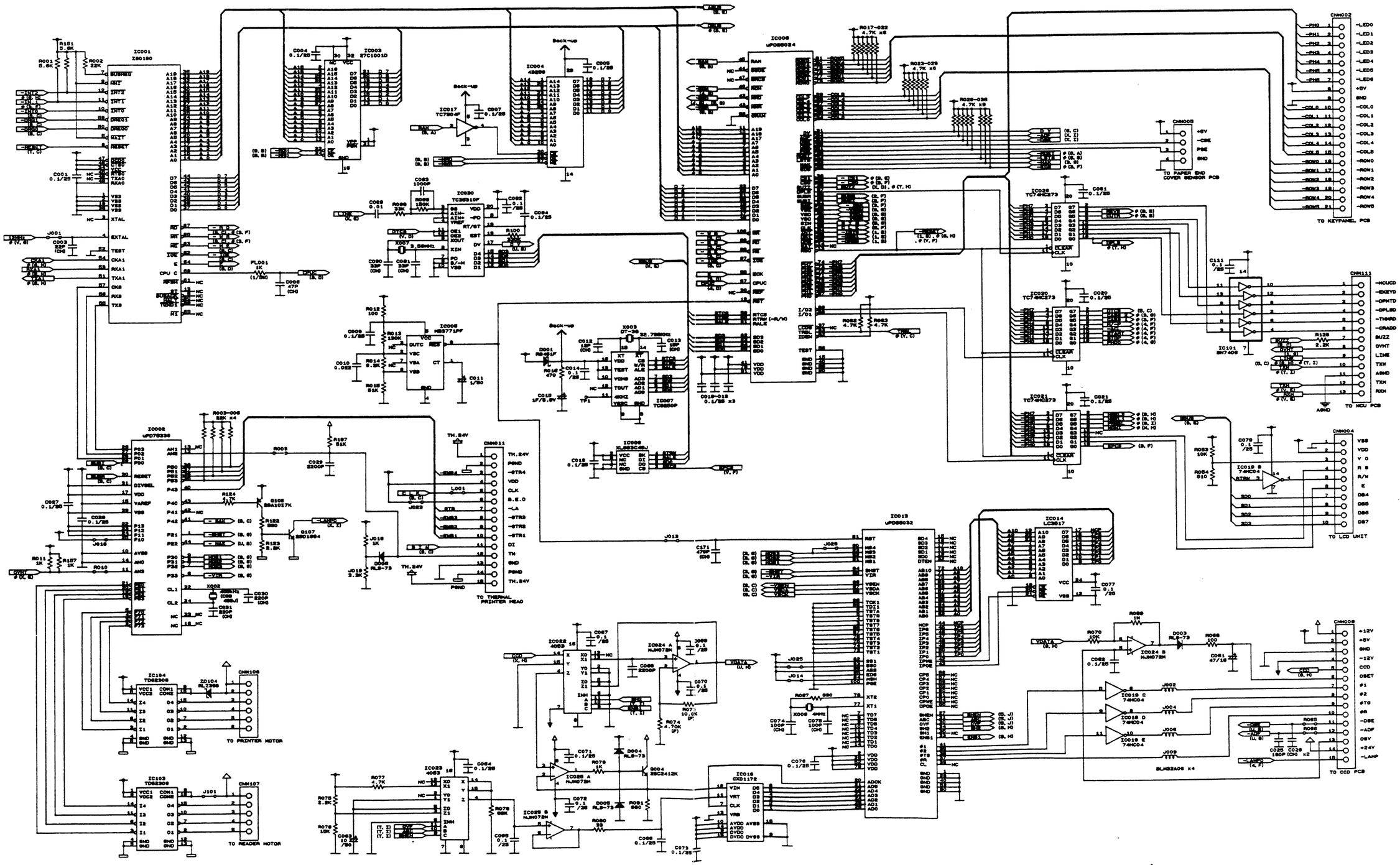


NOTE
1. ALL RESISTORS ARE IN OHM AND 1/10W UNLESS OTHERWISE NOTED.
2. ALL CAPASITORS ARE IN uF AND 50V UNLESS OTHERWISE NOTED.

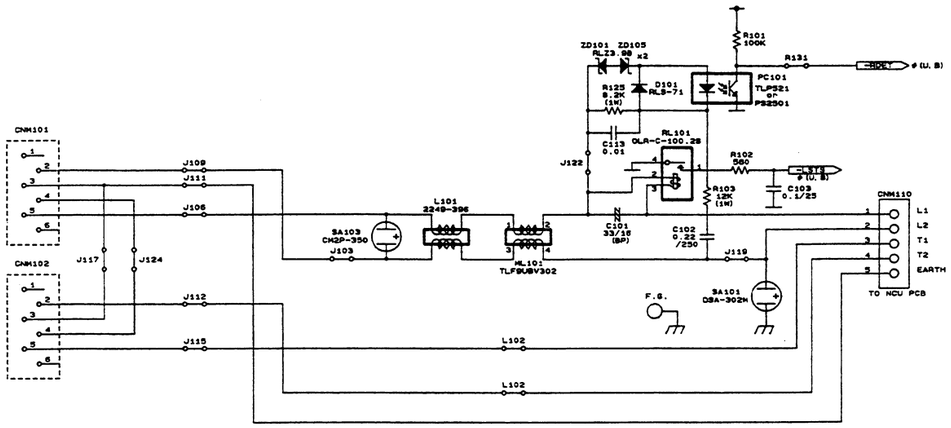
Q5020DRW

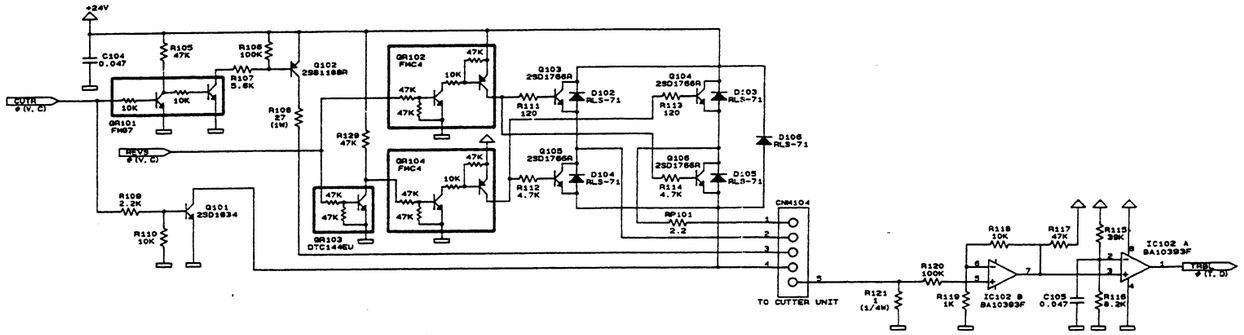
SCHEMATIC DIAGRAM

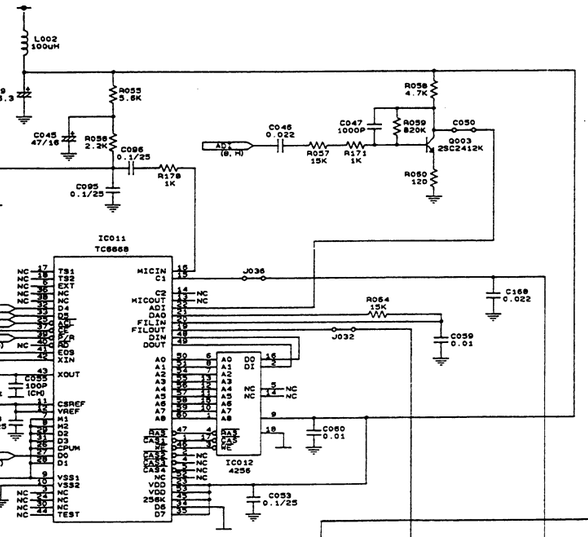
MAIN PCB (1)

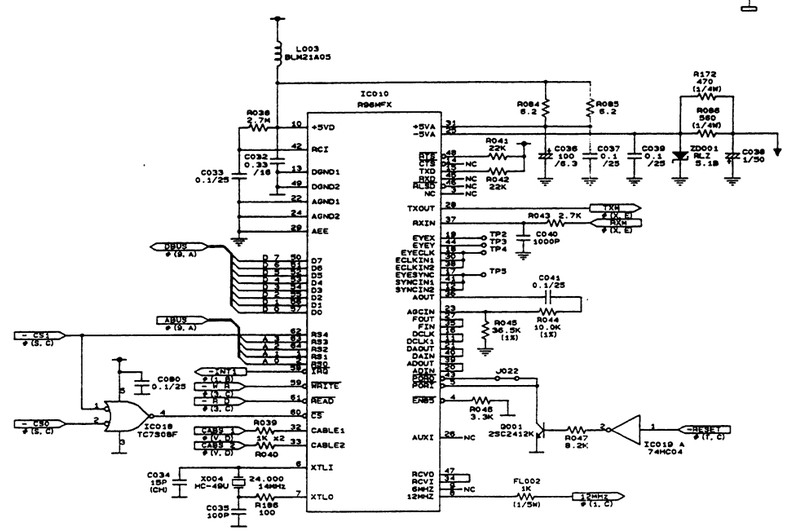


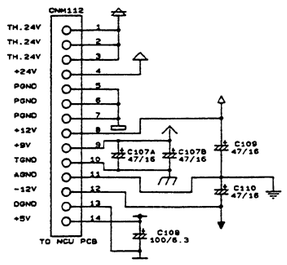
MAIN PCB (2)

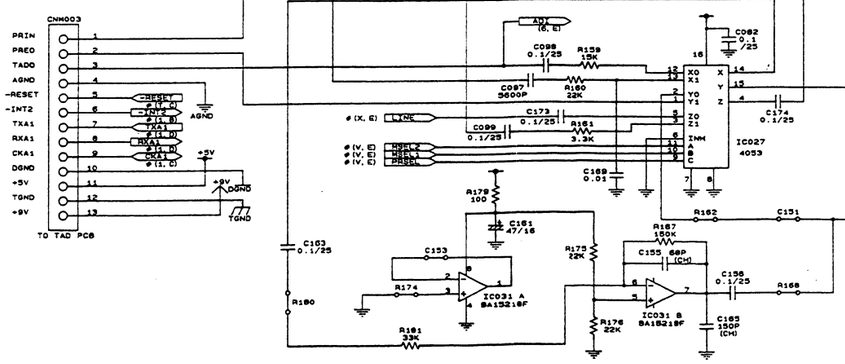


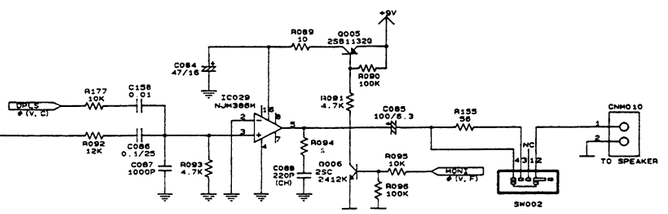








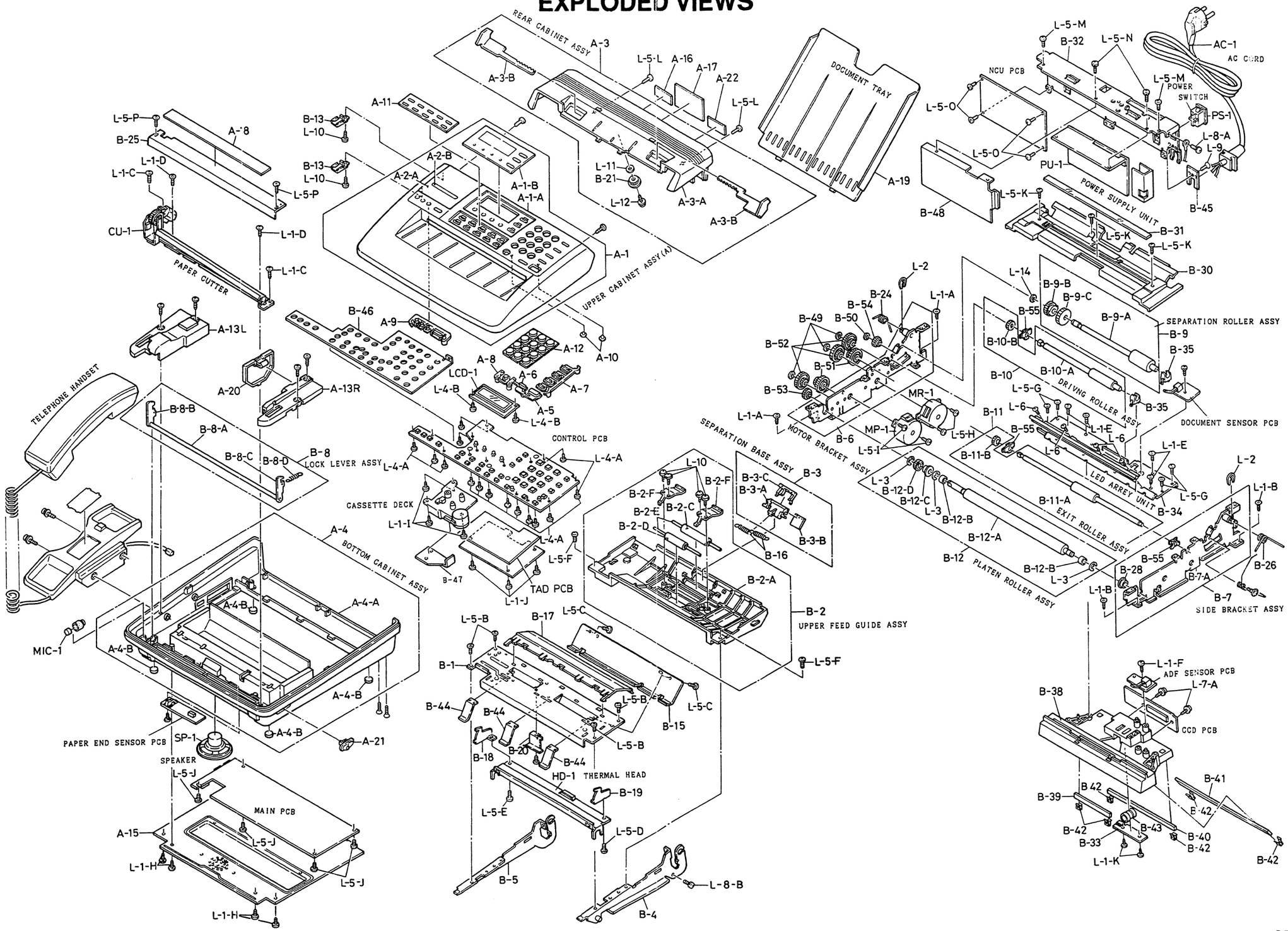




NOTE

1. ALL RESISTORS ARE IN OHM AND 1/10W UNLESS OTHERWISE NOTED.
2. ALL CAPASITORS ARE IN uF AND 50V UNLESS OTHERWISE NOTED.
3. #(,) OF MODULE PORT ARE CONNECTED WITH ANOTHER DIAGRAM.

EXPLODED VIEWS



Q5000EX